



IMPORTANCE AND MANAGEMENT OF IT PROJECT STAKEHOLDERS

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By

Muhammad Zaid Khatieb (KHTZAI002)

Supervisor: Ian Jay

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ABSTRACT

Information technology project success rates remain low despite increased investments in information systems and their importance for contemporary organisations. Both research and practice suggest that stakeholders play a key role in ensuring the successful delivery of projects. The success or failure of a project is significantly influenced by a combination of the stakeholders' needs, and the ability and readiness of the project manager to effectively coordinate and manage these aspects. This research sought to explore and understand the importance and management of IT project stakeholders.

A mixed-method approach, using thematic analysis and descriptive statistics was followed. Semi-structured interviews, along with a survey questionnaire, were conducted with a selected sample of IT project managers and IT managers, from various sectors. Results of this study indicate that the project team, technical expert, subject matter expert, and the project sponsor are considered the most important stakeholders on IT projects. Furthermore, the results indicate that supplier/vendor, customer/client and project team are considered to be the stakeholders that cause the most uncertainty and problems on IT projects. Lastly, the results of this study indicate that failure to identify one or more stakeholders on an IT project can have a potential negative impact on overall project delivery. Key themes were also identified which provide context to the results of the findings.

The results of this research will prove beneficial to IT project managers as it will assist in providing insight into which stakeholders require greater focus regarding stakeholder management, thereby working toward improving IT project delivery results.

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LIST OF ABBREVIATIONS

PMI – Project Management Institute

PMBok® – Project Management Body of Knowledge

IT – Information Technology

TE – Technical Expert

SME – Subject Matter Expert

1. INTRODUCTION & PROBLEM DESCRIPTION

1.1 INTRODUCTION

The continued existence of organisations necessitates the need for them to alter and transform the manner in which business is conducted, in order to ensure survival within their industries (Pajunen, 2006). This sustained presence is reliant on their interaction and engagement with stakeholders within the organisation (Karlsen *et al.*, 2005; Pajunen, 2006).

The necessity for organisations to continue doing business places significant pressure on senior management to acclimate to these demands and guide the organisation to future successes (Pajunen, 2006; Jiang and Klein, 2014). This need for change creates a need to invest in projects, as projects are a significant factor in the continued development and survival of the organisations (Hass, 2005; Karlsen *et al.*, 2005; Peslak, 2006; Bourne and Walker, 2007).

According to the Guide to the Project Management Body of Knowledge (PMBOK® Guide) , project management can be defined as *“the application of knowledge, skills, tools and techniques to project activities in order to meet project requirements”* (PMI, 2013: 5). Shenhar and Dvir (2007: 94), in their research into challenges faced by projects, define a *project* as a *“temporary organisation and process set up to achieve a specified goal under the constraints of time, budget, and other resources”*, and *project management* *“as the managerial activities needed to lead a project to a successful end”*. A project can consequently be viewed as a temporary undertaking which intends to produce a distinctive product or service (Shenhar and Dvir, 2007; Tesch *et al.*, 2007; PMI, 2013).

A key factor as to why projects are so critical in modern organisations is that they enable a timeous response to the ever changing business and technology landscape. Another factor is the further specific nature of a dynamic environment within which modern business operates (Hass, 2005; Karlsen *et al.*, 2005; Letseka and Tiko, 2011). A large percent of projects generally contain information technology (IT) components and present unique kinds of activities (Schwalbe, 2004).

IT is a business enabler, viewed as a key element in all business environments (Hartman and Ashrafi, 2002). This is demonstrated in both government and private sector organisations which invest in IT initiatives at a continuously growing pace (Hartman and Ashrafi, 2002; Rosacker and Olsom, 2008; Silva and Costa, 2014).

IT currently affords organisations countless opportunities, as well as offering them challenges in today's competitive environment (Bardhan *et al.*, 2013; Silva and Costa, 2014). Most organisations consider investments in IT, referring to the allocation of resources to various types of IT, be it hardware, system software, and application software, to be of value (Silva and Costa, 2014). Despite this perceived value, IT still poses a significant challenge when evaluating and quantifying the nature of its contribution, with this evaluation and feasibility featuring quite prominently in the literature (Silva and Costa, 2014).

Every development project involves a wide array of stakeholders who come from diverse backgrounds and with varied interests, and are co-dependent owing to complex relationships and interactions (Mok *et al.*, 2017). A stakeholder can be defined as the individuals, groups or organisations “*who may affect, be affected by, or perceive itself to be affected by a decision, activity, or outcome of a project*” (PMI, 2013: 563). These stakeholders may typically be involved in executing project activities, or have an interest which may have a positive or negative impact on the general execution of the overall project (PMI, 2013). Project stakeholders encompass all the project team members, along with those interested parties that are internal or external to the organisation who are either directly or indirectly impacted by a project. (Huang and Wang, 2006; Sutterfield *et al.*, 2006; PMI, 2013). Consequently, project stakeholders are viewed as the central figures of a project as well as the principal element of its successful delivery (Huang and Wang, 2006; Aaltonen and Kujala, 2016; Mok *et al.*, 2017).

It is commonly accepted that a project has several stakeholders, whose expectations on delivery may vary (Huang and Wang, 2006; PMI, 2013). A project manager will seek the stakeholders' input to the project in order to ensure that the project is successfully delivered (Huang and Wang, 2006).

Despite the extensive and varied research into project stakeholder management, prior research has paid very limited attention to better understanding the nature of different types of project stakeholders, and their implications for project management (Aaltonen and Kujala, 2016). Understanding stakeholders, their influences and devising management strategies based on analyses has become one of the significant competences within project organisations (Aaltonen and Kujala, 2016; Mok *et al.*, 2017).

1.2 BACKGROUND

A number of IT projects typically include the delivery of a service to develop and deploy a solution, which comprises a range of hardware and software components (Zwikael, 2008; Walton, 2013; Joseph *et al.*, 2014). Projects carried out within the context of an IT environment are generally categorised as containing significant risk, as they involve swift change, and typically requiring the requisite interpersonal skills to manage (Gillard, 2004; Zwikael, 2008). Additionally, it may involve a large number of requests for change during the execution of the project, often resulting in many projects not being delivered according to the specified requirements, within the agreed budget or timelines (Gillard, 2004; Zwikael, 2008; Joseph *et al.*, 2014).

Project management as a job function is a specific form of management that is applied in order to achieve a sequence of organisational goals, strategies and project activities within an agreed upon timeframe and budget (Srivannaboon, 2006; Shenhar and Dvir, 2007; Littau *et al.*, 2010). Within various institutions, the notion of recognized project management is a key element of the business environment and its application is aligned with defined business best practices (Srivannaboon, 2006; Jiang and Klein, 2014). The benefit of project management application and its ability to aid in improving project delivery has been acknowledged by organisations as it ultimately aids in improving organisational performance (Kloppenborg *et al.*, 2007).

The increased dependence on IT and the rising costs of ensuring successful delivery highlights the importance of IT project performance and its relevance as a significant organisational consideration (Gemino *et al.*, 2007; Martin *et al.*, 2007). Despite this, successfully delivering on the predefined goals and objectives of IT projects continues to pose a key challenge for many organisations (Lyytinen and Robey, 1999; Schwalbe, 2004; Sumner *et al.*, 2006; Gemino *et al.*, 2007). This is evidenced by research into project performance which persistently highlight the need for improved delivery on IT projects (Sumner *et al.*, 2006; Gemino *et al.*, 2007).

Historically, project performance has been described in terms of three aspects: cost, time and quality (Dalcher and Benediktsson, 2006; Gemino *et al.*, 2007). It has however been proposed that project performance measurement should also include overall project team satisfaction, stakeholder satisfaction with the project team and the additional benefits delivered by the IT project (Dalcher and Benediktsson, 2006; Martin *et al.*, 2007).

Projects which are successfully delivered are beneficial to organisations, and is facilitated by project management processes which aid organisations in achieving strategic outcomes and providing valued advantage (Besner and Hobbs, 2006; Dalcher and Benediktsson, 2006). The organisation benefits once the project management processes along with the associated methodologies and techniques enable and improve the success rates of projects (Besner and Hobbs, 2006; Martin *et al.*, 2007). This is achieved by resources, who are allocated to most projects on a limited basis, and thereby requires effective management of the project constraints (Hartman and Ashrafi, 2002; Dalcher and Benediktsson, 2006).

While there are many individuals who are actively involved in the project and contribute to its successfully delivery, the project manager is frequently attributed as the resource providing the primary leadership, critical to ensuring the project is delivered successfully (Hartman and Ashrafi, 2002; Brewer, 2005). With the advent of organisations adopting a project model, and the increase in the number of IT projects, it places significant responsibility on the project manager who is required to manage various projects and teams, all comprising of stakeholders from varying levels within the organisation (Crawford and Brett, 2001; Brewer, 2005).

The effective management of the various project stakeholders – referring to any individual or group of individuals that is directly or indirectly impacted by a project – can either positively or negatively impact projects within any organisation (Sutterfield *et al.*, 2006). The full extent of this impact on the project may largely be determined by how the various stakeholders are managed on the project (Sutterfield *et al.*, 2006).

Within the project management methodology and process, project stakeholders have or perceive that they may have various interests in the project (Sutterfield *et al.*, 2006; Bourda, 2013). With these perceived interests in mind, the stakeholders may conduct themselves in a manner which they believe will assist them with achieving their objectives, which are not always congruent with the project managers' mission and objectives (Elias *et al.*, 2002; Sutterfield *et al.*, 2006). In order to successfully deliver a project, it is vital that the interests of various stakeholders are considered and managed by the project manager, across the different project phases (Sutterfield *et al.*, 2006; Karlsen *et al.*, 2008). This includes understanding the objectives of each project stakeholder in order to effectively manage his or her needs and interests (Sutterfield *et al.*, 2006).

Through not adequately identifying and managing the stakeholders, along with their often conflicting needs, many projects may be destined to fail (Sutterfield *et al.*, 2006). This is regardless of the project manager delivering the project according to the original planned schedule, budget and scope (Sutterfield *et al.*, 2006; Bourne and Walker, 2007). Moreover, there is research which advocates that stakeholders can have different views around what project success comprise, both in terms of the relative importance of criteria and project performance against those criteria (Rowlinson and Cheung, 2008; Mazur *et al.*, 2014; Rajablu *et al.*, 2014).

The relationship between project managers and the various stakeholders, both internal and external to the organisation, applies a significant influence on the project processes and outcomes (Sutterfield *et al.*, 2006; Mazur *et al.*, 2014). This ultimately determines the success or failure of a project (Sutterfield *et al.*, 2006; Mazur *et al.*, 2014). The project environment is complex and dynamic, and insufficient focus on management of stakeholders can lead toward unexpected issues and uncertainty arising from these stakeholders (Karlsen, 2002). It is therefore essential to

understand which stakeholder strategy should be applied to each stakeholder group, based on their importance to the overall project.

1.3 VALUE OF THE RESEARCH

This study will aid organisations involved in the implementation of IT projects by providing insight into the importance and management of vital stakeholders involved in project delivery.

In today's project environment, nearly all projects occur in a context where the stakeholders fulfill key roles and participate in the accomplishment of delivering on tasks (Karlsen, 2002). With this in mind, ensuring the effective management of project stakeholders can assist organisations in efficiently delivering on expected project outcomes and improving project performance.

This research can contribute to the body of Information Technology literature on project management by providing meaningful insights into the importance of the impact and management of key stakeholders in contributing toward successful project outcomes.

1.4 PROBLEM STATEMENT

The research problem to be investigated in this study can be summarised as follows:

Efficiently delivering on expected goals and objectives of information technology (IT) projects continues to be a challenge for many organisations striving to remain competitive within their respective industries. The relationship between project managers and the various stakeholders applies a significant influence on the project processes and outcomes, and in ultimately determining the success or failure of a project. By not effectively identifying and managing the stakeholders, many projects may be fated to experience failure, despite the project manager delivering the project per the original time, budget and scope.

Therefore, the problem statement can be stated as such:

IT Projects fail to deliver the expected outcomes anticipated by important stakeholders' due to ineffective stakeholder identification and management

1.5 OBJECTIVES OF THE RESEARCH

As previously highlighted, research suggests that stakeholders can have varying perceptions of what constitutes project success, both in terms of the importance of criteria and project performance against the criteria. Furthermore, by not effectively identifying and managing the stakeholders, many projects may be destined to fail, as stakeholders play an important part in defining the success of the project (Rowlinson and Cheung, 2008; Mazur *et al.*, 2014).

The objectives of this research are closely linked with a study into project stakeholder management conducted by Karlsen (2002), and are as follows:

- Identify which stakeholders are most important to the project, and therefore allow for an improved approach to engaging and managing these priority stakeholders
- Establish which stakeholders impact the project by causing problems on the project and who pose greater risk to its effective delivery

1.6 RESEARCH QUESTION

The proposed research questions are as follows:

1. Which stakeholders are most important on an IT project?
2. Which stakeholders cause the most uncertainty and issues on an IT project?
3. Does failure to identify one or more stakeholders negatively affect IT project outcomes?

1.7 RESEARCH PROPOSITION

The research proposition which the research is based on can be summarised as follows:

An improved understanding of the management and importance of the IT project stakeholders will provide organisations with a basis for improving on the successful delivery of IT projects.

1.8 RESEARCH METHOD

To meet the research objectives, a literature review will be conducted in order to review information on the factors around IT projects and project stakeholder management. Furthermore, the data collection approach comprises of semi-structured interviews, supplemented by a brief survey questionnaire, which will be used to gain an understanding around the impact and management of IT project stakeholders.

1.9 STRUCTURE OF REPORT

Chapter 1 has provided the introduction and background to the research undertaken, along with an overview of the research value, problem statement, research objectives, research questions, and research proposition.

In **Chapter 2**, an extensive literature review will be covered, in which the challenges of IT projects will be discussed, along with a review of stakeholder management, identification and importance. Additionally, the relationship between IT project performance and stakeholder management will be discussed.

Chapter 3 will identify the research methodology applied in addressing the requirements for this research and the limitations and ethical considerations will be noted. **Chapter 4** will provide a view of the research results with **Chapter 5** covering the discussion of the results identified.

Chapter 6 will conclude the research by providing a summary of the research based on the research objectives and questions identified. The chapter will conclude by providing recommendations for future research that will build on the findings made in this research.

2. LITERATURE REVIEW

2.1 IT PROJECTS

Projects are typically implemented by an organisation with the purpose of gaining efficiencies in process and providing services as well as competitive advantage (Zhai *et al.*, 2009; Letseka and Tiko, 2011). In order to achieve this, an organisation can utilize and take advantage of its IT capabilities (Iacovou and Dexter, 2004; Letseka and Tiko, 2011).

Organisations have been displaying an increasing reliance on IT, with many of these organisations unable to function and execute their processing and activities without IT (Snider and Parth, 2007; Letseka and Tiko, 2011). Whether organisations choose to outsource or develop IT solutions internally, they are invariably delivered via a project (Snider and Parth, 2007; Letseka and Tiko, 2011). Projects are dynamic and multidimensional undertakings, which have various factors interacting and engaging in their execution (Gemino *et al.*, 2007; Snider and Parth, 2007; Silva and Costa, 2014).

IT projects consist of specific characteristics which need to be considered in their management, despite it containing many similarities with traditional projects (Lopes and Manas, 2013). The majority of IT projects today generally involve the implementation of software solutions that may be created through custom development or alternately are based on third party packaged software (Iacovou and Dexter, 2004). The implementation and support of technology projects are complex exercises and comprise many elements, requiring effective planning and project management (Lientz and Rea, 2001).

The management of IT projects is similar to management of other types of projects, for instance in the areas of construction and engineering (Snider and Parth, 2007). However, there are aspects which are unique to IT projects, including:

- Technical projects require project team members to possess specific technical skills.
- Many project team members typically have operational duties along with project responsibilities
- For small projects, project team members may often be allocated to multiple projects at the same time
- Large IT projects may support the core technology infrastructure of the organisation, with failure resulting in significant costs
- Due to the prevalence of information systems, a simple IT project may become complex as a result of the number of impacted systems
- The rapid rate of technology advancement can often result in out-of-date software
- The changing nature of technology can result in challenges with regards to accurately estimating costs, or the ability to learn from previous projects.

(Snider and Parth, 2007)

Effectively managing IT projects is a complex and often risky endeavor, as there are various factors that could impact the successfully delivery thereof (Iacovou and Dexter, 2004; Mitchell, 2006; Lopes and Manas, 2013). These factors may include: *“lack of executive support and user involvement, inexperienced project managers, unclear business objectives and requirements, scope creep, casual project management, ineffective use of methodologies, and use of unreliable estimates”* (Iacovou and Dexter, 2004: 69). Furthermore, additional impactful factors can be ascribed to the individuals involved, dialogue amongst the individuals who require the IT solution, and those who are expected to deliver the IT solution (Letseka and Tiko, 2011; Lopes and Manas, 2013). Ultimately, delivery of IT projects involve team efforts, with many factors influencing the manner in which teams can successfully achieve their goals and objectives (Peslak, 2006; Snider and Parth, 2007).

2.2 CHALLENGES OF IT PROJECTS

There are various risks and challenges which present themselves during the execution of a project, which if not correctly identified and managed, can greatly impact on the outcomes and ultimate success of the project (Abdul-Rahman *et al.*, 2012). While many of these project risks may have a low likelihood of occurring, there is evidence in the literature which suggest that there is a need to improve the management of these threats (Abdul-Rahman *et al.*, 2012).

In IT projects, while the monetary cost of poor performance and failure can prove significant, the value of missed opportunities and value can be quite significant (Abdul-Rahman *et al.*, 2012).

Snider and Path (2007) note that unlike project team members of traditional projects, where the team forms, builds and releases a product, then dissolving and never interacting with the product, IT project teams develop the product, and are often required to maintain it thereafter. Consequently, their time may then be split between daily operational activities along with working on projects, and therefore, quite frequently, leads to issues with prioritizing work activity with projects (Snider and Parth, 2007). This is further compounded, as IT projects may have to share resources across multiple projects, along with support activities (Snider and Parth, 2007).

A further challenge that often has an impact on the delivery of an IT project is resistance to change (Cadle and Yeates, 2004). Changes resulting from IT projects are often met with resistance as a result of project managers not anticipating the reactions to change that may be encountered from the stakeholders affected by the system (Cadle and Yeates, 2004). Furthermore, this resistance can be either active, openly challenging project delivery, or passive, subversively and indirectly protesting against the proposed change (Cadle and Yeates, 2004). This may further be exacerbated by not correctly identifying and managing all project stakeholders (Phillips, 2004).

In **Table 1**, Lientz and Rea (2001), provide further view of the key differences and challenges between standard and IT projects.

Table 1: Lientz and Rea (2001), differences between standard and IT projects

Area	Difference
<i>Purpose</i>	Goals of the system and technology are often not clearly articulated
<i>Scope</i>	IT projects occasionally lack clear boundaries, and complete understanding of system complexity. Additionally, scope can creep and expand
<i>Parallel work</i>	While a new system is being implemented, development on an existing system may continue, creating changing requirements
<i>Technology dependence</i>	New technology, of which the organisation may not have adequate knowledge on, or limited experience in implementing, may be used, thereby raising the level of risk
<i>Management expectation</i>	Senior Management who attend conferences and read about new technologies, may impose their expectations on the project
<i>Cumulative impact</i>	One project can affect others, with the next project being dependent on the current one
<i>Understanding the technology</i>	Although non-system related projects may include some level of technology, it is usually simpler to apply as the technology can be handled separately. In IT, it is the reverse, whereby the only way modern systems can be successful is by integrating multiple technologies

(Lientz and Rea, 2001)

Successfully delivering on the expected value from IT projects remains a challenge for many organisations, with various research continuing to stress the need for improved delivery on IT projects (Gemino *et al.*, 2007; Kutsch and Hall, 2009). Despite IT becoming more dependable, efficient and inexpensive, the costs, complexity and associated risks of IT projects remain a challenge for organisations (Marchewka, 2003). Furthermore, the mixture of escalating dependence on information technology along with the growing expenditure of delivery of these projects suggest that the performance of IT projects represents a key endeavor for organisations (Gemino *et al.*, 2007; Snider and Parth, 2007; Kutsch and Hall, 2009).

Lopes and Manas (2013), in their study of delays in IT projects as result of failures in stakeholder management, found that IT project delivery can certainly be negatively affected as a result of failures in the management of its stakeholders, be it directly or indirectly. This impact may result from the below noted challenges, in **Table 2**:

Table 2: IT Project Stakeholder management failures, adapted from Lopes and Manas (2013)

Stakeholder management failures	Description
The lack of stakeholder identification	Not adequately identifying all stakeholders can adversely impact the project deadline and other project variables. Failure to adequately identify a stakeholder may result in new requirements on the part of this stakeholder, who was earlier "forgotten", and may consequently cause changes in scope and ultimately impact the delivery of the project.
Inclusion or exclusion of one or more stakeholders after the project	The negative impact of changing stakeholders may potentially be higher dependent on the status or power of the individual stakeholder. Furthermore, this may result from the new expectations brought by the stakeholder and potential requests for change in scope. Ultimately, new stakeholders may bring with them different expectations regarding the project deliverables and may possibly view the project with different priority (smaller) relation to other initiatives.
Poor communication	Lack of or inadequate communication with project stakeholders may have a severe negative impact on the outcome and delivery of a project.

(Lopes and Manas, 2013)

May (2007), in the review of major causes of software project failures, identified challenges to project success, resulting from stakeholders. These are listed in **Table 3**:

Table 3: Stakeholder causes of project failure, adapted from May (2007)

Causes of Project failure	Description
Poor Use Input	The successful delivery of projects may be challenged if the respective stakeholders do not provide adequate and detailed input during the process of requirement definition. All stakeholders, including the development team, needs to understand the business needs. This process needs to continue throughout the course of the project.
Stakeholder conflicts	Stakeholder conflicts can play many different roles in project failures. Projects may be challenged because of disagreements between stakeholders, resulting in projects struggling to progress. Projects,

especially smaller projects within larger projects, never go anywhere because the internal stakeholders never agree on priorities. Other projects may fail as a result of the project team not fully being aware of the “real” stakeholders.

Vague Requirements	Projects with requirements which have not been clearly defined are in jeopardy of not achieving the intended project objectives or changes in scope throughout the project. It is therefore essential to ensure a reasonably stable requirements baseline before any other work goes forward.
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(May, 2007)

Project stakeholders feel that they have a vested interest in deliverable or activity of a project (Sutterfield *et al.*, 2006). Subsequently, because of their perceived stake in the deliverable or task, they have certain expectations, and therefore engage in certain types of behaviour, which may sometimes be constructive and sometimes destructive (Sutterfield *et al.*, 2006).

If the project does not sufficiently address stakeholder management, it can lead to unintended issues and challenges, resulting in uncertainty to the project caused by stakeholders (Karlsen, 2002). This may materialise via inadequate definition of project success and failure criteria, subsequently resulting in the project manager endeavouring to achieve goals that were never intended by the stakeholders (Karlsen, 2002; Davis, 2014). Further challenges and uncertainty caused by stakeholders, which may impact project delivery, include poor communication, insufficient resources being assigned to the project, additions in scope and negative end user reactions to the project (Karlsen, 2002). Effectively and proactively working to reduce the potential for uncertainty and challenges triggered by stakeholders is key to ensuring successful project delivery (Bourda, 2013; Davis, 2014)

2.3 PROJECT STAKEHOLDERS

The initial notion of a stakeholder was formed in a Stanford Research Institute memo in 1963 (Olander, 2007). The original conception of a stakeholder was put forward by Freeman (1984), as cited by Olander (2007), who viewed the stakeholders as *“any group or individual who can affect, or is affected by, the achievement of the firm’s objectives and who may be either primary or secondary”* (Olander, 2007: 278). This view was adopted by the Project Management Institute (PMI) (Olander, 2007), who defines stakeholders as the individuals, groups or organisation *“who may affect, be affected by, or perceive itself to be affected by a decision, activity, or outcome of a project”* (PMI, 2013: 563). These stakeholders may actively be involved in executing project activities, or possess an interest which may be *“positively or negatively affected by the execution, completion, or cancellation of the project.”* (PMI, 2013: 391).

Project stakeholders comprise of all project team members, along with those interested parties that are internal or external to the organisation who are either directly or indirectly impacted by a project. (Huang and Wang, 2006; Sutterfield *et al.*, 2006; PMI, 2013). Ward and Chapman (2008: 564) define internal stakeholders as *“project owners – who retains overall control - in the sense they have overall managerial responsibility and power, usually linked to a financial stake; and organisations, teams or individuals who have a contractual relationship with the project owner”*. Furthermore, external stakeholders may typically comprise of communities, government, system users, regulators, environment groups and the media (Ward and Chapman, 2008). Cadle and Yeates (2004), define internal stakeholders as those individuals who work for the project organisation, while external stakeholders are those who have an interest or stake in the project, but are external to the project organisation. The IT project stakeholder, as defined by Lopes and Manas (2013), is viewed as any group or individual who has the potential to influence and impact on the strategic project outcomes in regard to the information technology strategy within the organisation.

In **Figure 1**, Cadle and Yeates (2004) provide a view of the external and internal project stakeholder relationship, which provides an indication of how stakeholders and the organisation engage in an exchange relationship whereby stakeholders provide resources in exchange for a return from the organisation.

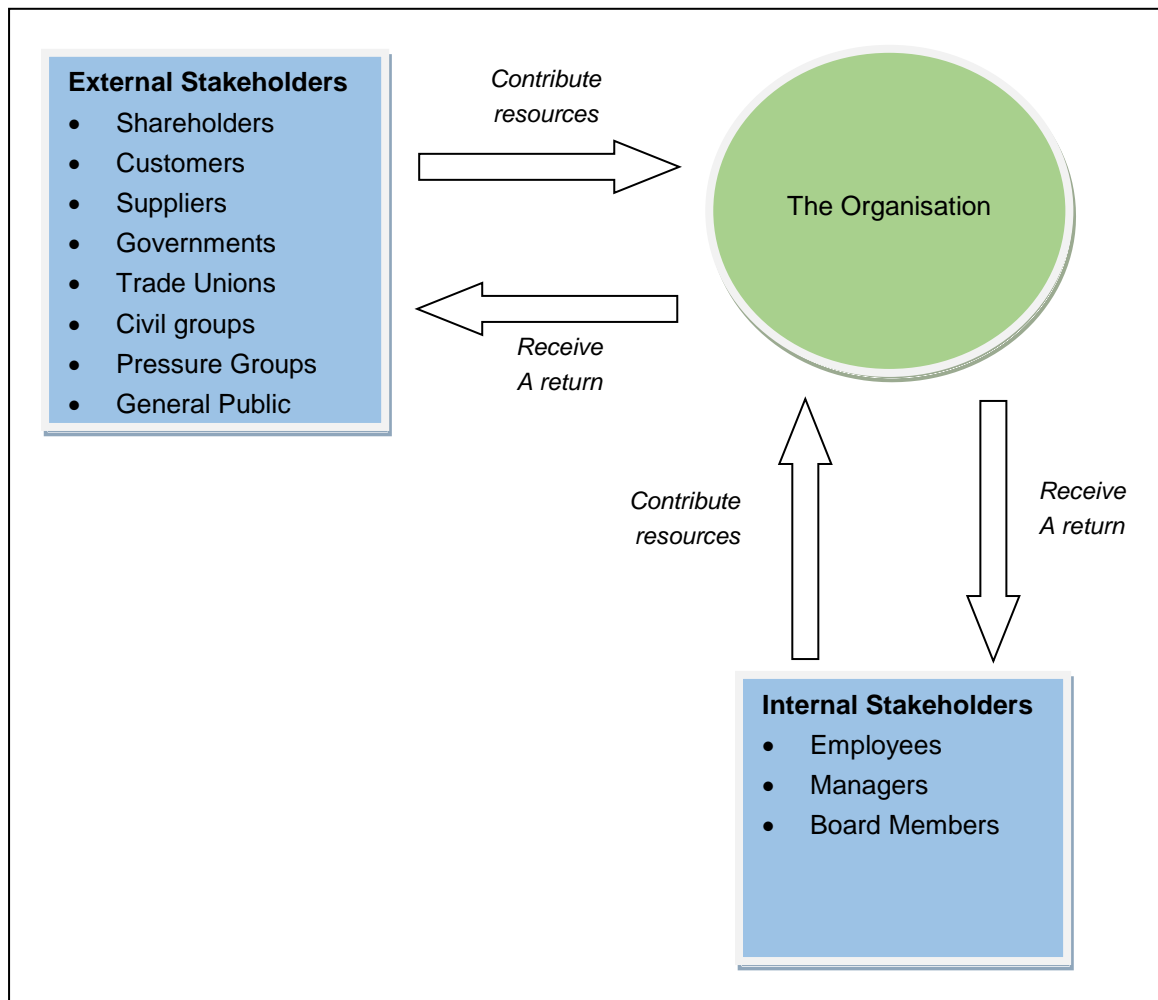


Figure 1: Stakeholders and the exchange relationship (Cadle and Yeates, 2004)

Both internal and external stakeholders need to be identified by the project management team to ensure that requirements and expectations of all stakeholders involved are considered (Huang and Wang, 2006; Sutterfield *et al.*, 2006; PMI, 2013). The external stakeholders, may require additional management in order to reduce unexpected issues, as they represent a greater potential impact on the project due to residing outside the formal influence of the project (Lopes and Manas, 2013). In addition, the project manager needs to manage the expectations of the numerous project

stakeholders in regard to the project requirements to facilitate the successful delivery of the project (Achterkamp and Vos, 2007; Lopes and Manas, 2013; PMI, 2013).

The relationship between the project, the project team, and other stakeholders are illustrated in **Figure 2**.

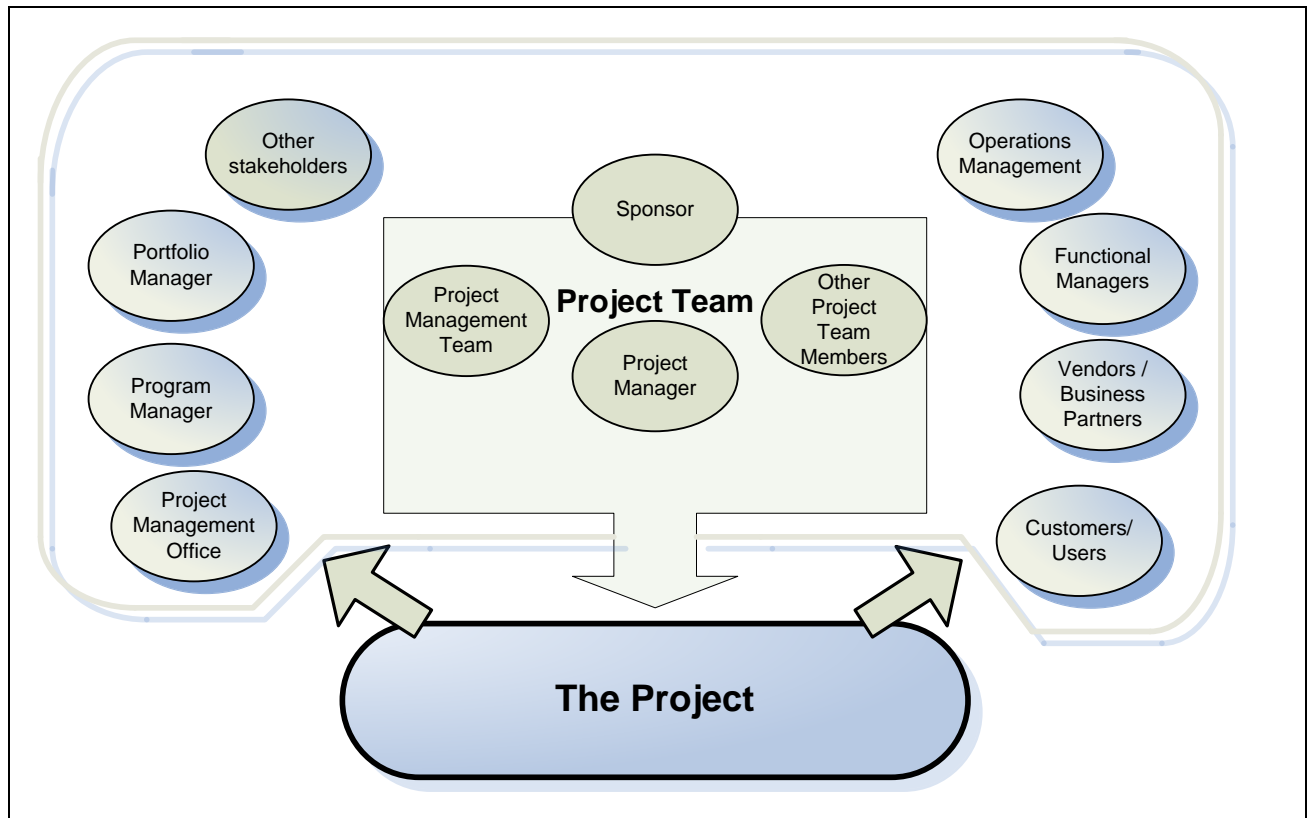


Figure 2: The relationship between stakeholders and the project (PMI, 2013: 31)

The definition of the “project stakeholder” that will be utilized throughout this research will be “*an individual or group of individuals that is directly or indirectly impacted by a project*”, as defined by Sutterfield *et al.* (2006: 27). More specifically, these internal and external stakeholders perceive that they have an interest in the entity or task of a project (Sutterfield *et al.*, 2006). Additionally, the term “project team” will be referred to as “*members with diverse sets of knowledge and expertise that work interdependently on information system technology (IST) projects with a clearly defined objective and structure for a defined period of time to make suggestions on system improvements (in terms of quality, cost, and productivity) or design and develop new products for their organisations*”, as defined by Jetu and Riedl (2012: 461).

IT Projects require various different individuals with different skill sets (Marchewka, 2003).

Although these skills may vary from project to project, a typical IT project may comprise of the following:

- Project Manager – Considered to be the team lead who is responsible for ensuring project management approach and associated methodologies successfully executed.
- Project Sponsor – May be the client, customer, or organisational manager who will champion the project within the organisation as well as providing the necessary resources and project direction.
- Subject Matter Experts(s) (SME) – May be a user or client who has the specific technical expertise, knowledge, or insight in a specific functional area required to support the project.
- Technical Expert(s) (TE) – Technical expertise is required in order to provide a technical solution which caters to the organisational needs. TE can include system analysts, programmers, infrastructure resources, trainers etc.

(Marchewka, 2003)

Karlsen (2002), study into project stakeholder management, provides a view of project stakeholders, which closely aligns to that presented by Cadle and Yeates (2004), shown in **Figure 3**:

3:



Figure 3: Project Stakeholders (Karlsen, 2002: 20)

Karlsen (2002) suggests clients, users and public authorities tend to place significant demands on project execution, and it is therefore vital to effectively manage these stakeholders. It is key to develop an understanding that is able to garner an appreciation and trust, leading to constructive working relationships (Karlsen, 2002).

During the execution of a project, the varied stakeholders involved are known to have various interests in the project (Cadle and Yeates, 2004; Sutterfield *et al.*, 2006; PMI, 2013). Based on their perceived interests in the project, stakeholders act in a manner in which they believe will aid them in achieving their desired project goals and objectives, which may either be against or aligned with the project manager's project vision and objectives (Sutterfield *et al.*, 2006; PMI, 2013). Consequently, it is essential that the project manager consider the goals and objectives of all stakeholders' to allow for the effective management of their expectations (Huang and Wang, 2006; Sutterfield *et al.*, 2006).

Inherently, to attain the desired outcome of successful project delivery, the project manager must be capable of managing the interests of numerous stakeholders throughout the entire execution of the project (Sutterfield *et al.*, 2006; PMI, 2013).

2.4 STAKEHOLDER MANAGEMENT

As previously noted, a project is viewed as a temporary organisation, established to generate value, through process and interactions, which requires resources for execution (Crawford and Brett, 2001; Eskerod and Vaagaasar, 2014). Project management is increasingly being used in numerous organisations, with its value gradually attracting the interest of organisations (Zhai *et al.*, 2009). A significant part of project management requires the interaction with stakeholders to facilitate in their contribution toward project goals and objectives (Rowlinson and Cheung, 2008; Littau *et al.*, 2010; Eskerod and Vaagaasar, 2014).

It is broadly acknowledged that most projects have a varied range of associated stakeholders whose interests and concerns can affect and influence the project's outcome and progress to a greater or lesser degree (Rowlinson and Cheung, 2008; Ward and Chapman, 2008; Littau *et al.*, 2010).

In today's business environment, virtually every project occurs in a framework where stakeholders play a key role in the accomplishment of the deliverables, with these projects continuing to be influenced by the actions and decisions taken by stakeholders (Karlsen, 2002). As a result, stakeholders are also a key cause of uncertainty in projects, with this uncertainty encompassing knowledge of who the relevant stakeholders are, how they could potentially influence a project, and what their motivations are in regards to how their actions affect project delivery (Ward and Chapman, 2008).

Research over recent years has given strong indication to the significant importance of stakeholders on projects, with stakeholder management seen as a key focus area on projects (Crawford and Brett, 2001; Sutterfield *et al.*, 2006; Littau *et al.*, 2010; Eskerod and Vaagaasar, 2014). The management of stakeholders involves the project manager in an approach which allows the stakeholders involved to achieve their goals and deliverables, by means of active contribution in the project process (Pajunen, 2006; Rowlinson and Cheung, 2008).

A Guide to the Project Management Body of Knowledge (PMBOK® Guide) defines stakeholder management as “*the process required to identify the people, groups, or organisations that could impact or be impacted by the project*” (PMI, 2013: 391). Additionally, it includes the analysis of the stakeholder expectations, along with their impact on the project, in addition to the development of an effective strategy to engage with stakeholders (PMI, 2013). The PMBOK® Guide (PMI, 2013) further defines this process as the following:

1. Identify Stakeholders – Identifying individuals, groups, or organisations that could impact or be impacted by a decision, activity, or outcome of the project; and analysing and

documenting relevant information regarding their interests, involvement, influence, and potential impact on the project success.

2. Plan Stakeholder Management – Developing appropriate management strategies to effectively engage stakeholders throughout the course of the project, based on an understanding of their needs, interests and potential impact on project success.
3. Manage Stakeholder Engagement – Communicating and working with stakeholders to meet their needs and expectations, resolve issues that occur, and maintain appropriate stakeholder engagement.
4. Control Stakeholder Engagement – monitoring overall project stakeholder engagement and relationships.

(PMI, 2013)

The stakeholder concept has become a significant component of project management, with the basic tenet of stakeholder management advocating that the project management team can increase the possibility of successfully delivering a project through influencing and management of stakeholders (PMI, 2013; Eskerod and Vaagaasar, 2014). This approach views stakeholder management as a method of ensuring stakeholders contribute in a manner required by the organisation and project (Eskerod and Vaagaasar, 2014). Aside from the potential benefits of effective stakeholder management, it is generally acknowledged that about “80% of the time is wasted on managing stakeholders” (Bourda, 2013: 5). Furthermore, lack of effective stakeholder management and poor communication are two of the vital reasons why change often fails on a project (Bourda, 2013).

Stakeholder management must not only focus on individual stakeholders but should also account for stakeholders influencing each other in somewhat complex interactions of multiple and potentially interdependent stakeholders (Beringer *et al.*, 2012; Eskerod and Vaagaasar, 2014). The project is governed by negotiations and contractual agreements in order to ensure that the objectives and benefits, as well as the project plan, are including the interests of the project stakeholders (Cadle and Yeates, 2004; Eskerod and Vaagaasar, 2014). The project management team has a restricted amount of resources – with regards to time, funds, management attention,

among other things – to allocate on project stakeholder interactions, and as a result will be required to effectively and efficiently deal with each stakeholder given these constraints (Cadle and Yeates, 2004; Eskerod and Vaagaasar, 2014). Therefore, it is advantageous for the project management team and project stakeholders for the former to engage with the project stakeholders' in a manner which ensures they contribute as required by the project (Ward and Chapman, 2008; Eskerod and Vaagaasar, 2014). This includes engagement with stakeholders both internal and external to the project organisation (Cadle and Yeates, 2004; Rowlinson and Cheung, 2008).

Management of stakeholders internal to the project is key for engaging with peer-to-peer relationships within the organisation, where there may be capacity for role ambiguity (Rowlinson and Cheung, 2008; Ward and Chapman, 2008; Lopes and Manas, 2013). This necessitates a process of dealing with varied stakeholder needs in a careful manner, which requires carefully planned management (Pajunen, 2006; Rowlinson and Cheung, 2008). The management of external stakeholders can include a range of informal and formal groups, including public and private sectors, government and non-government organisations (Rowlinson and Cheung, 2008).

The management of the project stakeholders presumes that the successful delivery of the project is reliant on consideration of the prospective affect of the project strategy and decisions on all the stakeholders during the execution of the project lifecycle (Ward and Chapman, 2008; Lopes and Manas, 2013). Therefore, it is key to have a formal process in place, in order to identify and manage the potential impact on the project stakeholders as a result of project decisions, along with the subsequent reactions, and how they may work together with each other and the project manager (Lopes and Manas, 2013).

Project managers should consider the stakeholder concerns surrounding projects and recognize that the appropriate involvement and management of stakeholders can be key to the successful delivery of a project (Mitchell *et al.*, 1997; Bourda, 2013). It is imperative that project managers ensure that a formal stakeholder management process, that is relevant to the needs of the project, is made available (Bourda, 2013). Ensuring that a formalized, documented, repeatable process for

mapping stakeholders exists, along with entrenching a clear approach for stakeholder management, can yield substantial benefits for the project and create value for the stakeholders (Bourda, 2013). Effectively managing stakeholders brings business change at the organisational and individual levels to “*transition individuals, teams, and organisations from a current state to a desired future project state*” (Bourda, 2013: 5; Eskerod and Vaagaasar, 2014).

2.5 STAKEHOLDER IDENTIFICATION

The effective delivery of project goals and objectives is significantly dependent on the management of relationships within a project, including the requirement to achieve project objectives that holistically address the stakeholders’ expectations during the execution of the project lifecycle (Mitchell *et al.*, 1997; Bourne and Walker, 2005). A key task that requires focus when developing a projects strategic objectives is to identify the stakeholders, with a view to understanding their expectations (Bourne and Walker, 2005; Ballejos and Montagna, 2008). This is necessary in order to provide a solution that best deals with their frequently inconsistent array of wants and needs (Karlsen, 2002; Bourne and Walker, 2005).

Stakeholder identification can be seen as a method by which to identify key stakeholders of the project who impact, or are impacted during the realization of the project objectives (Hutt, 2010; Kumar *et al.*, 2016). Ballejos and Montagna (2008) note that stakeholders are the first challenge that emerges on IT projects, with their identification seen as a critical activity for ensuring the successful delivery of the project. Stakeholders play an active role in the inception and initiation phases of a project, and should be identified early on in the project process (Mitchell *et al.*, 1997; Ballejos and Montagna, 2008). Ballejos and Montagna (2008) further note that the identification process is misguidedly frequently viewed as a “self-evident” activity, in which direct users and the development teams are the only stakeholders.

The approach to identifying stakeholders is closely associated with the analysis of their effect and potential impact on project success (Pablo Aragonés-Beltrán *et al.*, 2017). The successful delivery

of project management involves effective stakeholder management to support organisational and individual objectives through understanding and influencing the internal and external project environments (Bourda, 2013). Therefore, the identification and management of stakeholders are a key skill for all project managers (Bourda, 2013).

Every IT project comprises of various types of stakeholders, each having at least one role associated to it (Ballejos and Montagna, 2008). The ability to identify and fully comprehend the often “*hidden power and influence*” of the various project stakeholders is a critical skill which successful project managers need to possess (Bourne and Walker, 2005: 650). Knowledge of these stakeholders can prove significantly beneficial to the project, as they contribute knowledge, insights and backing in initiating a project and supporting it through its execution (Bourne and Walker, 2005; Ballejos and Montagna, 2008).

A further consideration with regards to stakeholder identification involves awareness regarding the dynamics of stakeholders on the project (Elias *et al.*, 2002). Throughout the lifecycle of the project, the range of stakeholders may change, with new stakeholders joining and wanting to be included in any decisions, while some drop out, as their involvement is no longer required in the execution (Elias *et al.*, 2002). Therefore, project managers of IT projects should be mindful of overlooking groups or individuals who may not be significant during a specific project phase, as they may grow to be important, or have a bigger influence, in subsequent project phases (Lopes and Manas, 2013).

Mitchell *et al.* (1997), in their study regarding identification and stakeholder salience - the degree to which managers give priority to competing stakeholder claims – introduced a model of identification based on three key attributes, namely: power, legitimacy and urgency. This approach presented stakeholders relationships with organisations with regards to the prioritization and classification of stakeholders per their interests, in different situations. Based on this method, stakeholders are categorized according to the occurrence of one, two or all three of the previously mentioned attributes, as summarized in **Table 4**.

Table 4: Stakeholder salience classification, adapted from Mitchell *et al.* (1997).

Type of stakeholders	Classification scheme
Latent stakeholders (possessing single attribute)	<i>Dormant stakeholder:</i> Groups or individuals who possess but lack either legitimacy or urgency.
	<i>Discretionary stakeholder:</i> Groups or individuals who possess legitimacy but lacks power and urgency to influence the organisation
	<i>Demanding stakeholder:</i> Groups or individuals who possess urgency but lacks power and legitimacy. Without power or legitimacy, they do not demand greatly of the organisation/project, however require monitoring with regards to their ability to gain a second attribute
Expectant stakeholders (possessing two attributes)	<i>Dominant stakeholder:</i> Groups or individuals who possess power and legitimacy but lacks urgency
	<i>Dangerous stakeholder:</i> Groups or individuals who possess power and urgency but lacks legitimacy
	<i>Dependent stakeholder:</i> Groups or individuals who possess legitimacy and urgency but lacks power
Definitive stakeholder (possessing three attributes)	Groups or individuals who possess all three attributes, i.e. power, legitimacy and urgency
Non-stakeholder	Groups or individuals who possess none of three attributes, i.e. power, legitimacy and urgency

If stakeholders possessed a single attribute, they are deemed to be *latent* - low salience – stakeholders, who are not likely to give any attention or acknowledgment to the organisation or project. These can be further classified as dormant, discretionary and demanding stakeholders. Stakeholders who possess two attributes, are seen as *expectant* stakeholders, with the

relationship with managers seen as "expecting something" (Mitchell *et al.*, 1997). Furthermore, expectant stakeholders can be classified as either dominant, dangerous or dependant. Lastly, stakeholders who possess all three attributes are referred to as *definitive* stakeholders. When such a stakeholder's need is urgent, managers have a clear and immediate directive to attend to and prioritize the stakeholders needs (Mitchell *et al.*, 1997).

Ballejos and Montagna (2008), in their research to find a systematic approach for identifying stakeholders for an inter-organisational IT projects, created a four-step method for identifying stakeholders, as seen in **Figure 4**. This systematic approach provides tools to consider all the areas involved, as key stakeholders may be excluded, without the application of rigorous mechanisms (Ballejos and Montagna, 2008). Furthermore, the approach is seen as significant, as the inter-organisational context introduces different cultures, interest, interactions which need to be considered (Ballejos and Montagna, 2008).

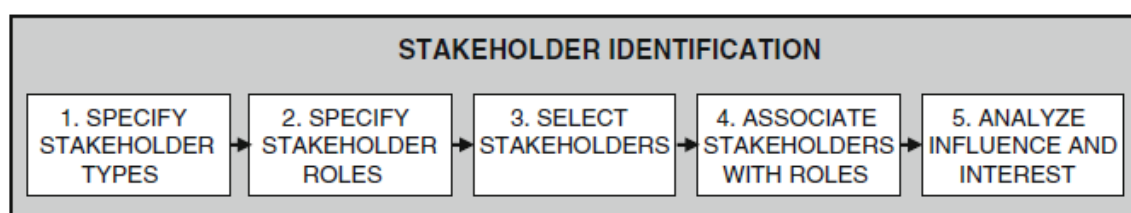


Figure 4: Ballejos and Montagna (2008: 285), stages for stakeholder identification

1. *Identify stakeholder types* – Where types are determined by considering individuals inside organisations, groups, or whole organisations, or those external to the organisation.
2. *Specify stakeholder roles* - Roles to be included in the project are specified. As many roles as possible must be associated to identified stakeholders. Roles will be later assigned to the stakeholders to be selected.
3. *Select stakeholders* - This step assists the project team in the concrete selection of individuals/entities having the conditions identified in Step 1 and 2. Through analysis of the characteristics of the criteria in each dimension, stakeholders who match the profile can be identified.

4. *Associate stakeholder roles* - In this step, the roles of the stakeholders selected in Step 3, are specified, using the tables created in Step 2. This task is important as each stakeholder may be associated to different roles.
5. *Analyze influence and interest* - This level of understanding can be best reached by conducting a formal assessment of each stakeholder level of influence (or power) and interest in the project. Determining whether stakeholders in a position of strong influence hold negative interests may be critical to project success.

2.6 STAKEHOLDER IMPORTANCE

According to Marchewka (2003), the key components of IT projects comprise of people, process and technology. Technology is a tool used to facilitate an activity, while processes provide the necessary structure and governance for executing a project (Marchewka, 2003). The success of a project, however, is frequently determined by the various project stakeholders, including the project team (Marchewka, 2003; Beringer *et al.*, 2013).

According to Beringer *et al.* (2013) , both research and practice suggest that stakeholders play a critical role in the successful delivery of projects. Aaltonen and Sivonen (2009) have claimed that conflicts and incidents related to stakeholders are amongst the most noteworthy unanticipated risks in projects which have been delivered in environments which have been challenging.

Mitchell *et al.*, (1997), contended that managers who do not prioritize and classify stakeholders according to their interests do not appreciate the importance of stakeholders. Typically, the performance of an organisation or a project is largely influenced and driven by how well its resources are organized and their performance (Marchewka, 2003).

Various studies have indicated that the rate of successful delivery of IT projects is still significantly low (Gillard, 2004; Shenhar and Dvir, 2007; Zwikael, 2008). Typically, significant focus is put on the management of the technology components as well as the related technical concerns, while modest emphasis is applied to stakeholder management and actively overseeing the individual stakeholder elements through all the project phases (Baccarani, 1999).

Research suggests that to improve outcomes, project management process should incorporate a number of aspects which distinctly include the stakeholders of the project (Legris and Colletette, 2006). The success or failure of a project is significantly dependant on the combination of stakeholder needs and objectives, and the competence and ability of the project manager to effectively oversee these aspect (Bourne, 2007a). Furthermore, successful completion of a project is dependent on successful engagement amongst the project resources accountable for the project execution (Thamhain, 2004a).

Karlsen (2002: 20) suggests that the project and its stakeholders can be viewed as a "*network in which the actors interact with each other*", exchanging knowledge, information and resources. When a project manager neglects stakeholder management, uncertainties and unanticipated issues may arise which may negatively impact on the delivery of the project (Lopes and Manas, 2013). Additionally, it is vital for the project manager to take cognizance of the warning signs, those related to stakeholders who may exert more influence over the project (Lopes and Manas, 2013). Each of these stakeholders has their own interest and agenda in the project, which may result in different priorities and conflicts (Karlsen, 2002; Karlsen *et al.*, 2008). Furthermore, resources and information which are inputs into the project are controlled by certain stakeholders, with this control of information and resources providing these stakeholders with a degree of power (Karlsen, 2002).

Deviations in access to this knowledge and resources can impact and influence the planning, organisation and execution of the project (Karlsen, 2002; Karlsen *et al.*, 2008). Therefore, certain stakeholders, through this influence and power, possess the ability to control information and resources, while other stakeholders are important, as they have the ability to decide whether a project is a success or not (Karlsen, 2002; Marchewka, 2003).

2.7 IT PROJECT PERFORMANCE AND STAKEHOLDER MANAGEMENT

In the current global environment of strong competition, to achieve and maintain competitive advantage, organisations must place importance on how they practice project and stakeholder management (Anantatmula and Thomas, 2010; Pablo Aragonés-Beltrán *et al.*, 2017).

While software has been successfully applied in numerous organisations, IT projects tend to have rather significant failure rates (Iacovou and Dexter, 2004; Glaser, 2005; Tesch *et al.*, 2007; Ferreira and Cohen, 2008; Warkentin *et al.*, 2009; Savolainen *et al.*, 2012; Vrhovec *et al.*, 2015; Pflügler *et al.*, 2016), with results often being described at a high level in terms of ‘success’ or ‘failure’, drawing on what is often referred to as the ‘iron triangle’, of cost scope and time (McLeod and MacDonell, 2010).

According to McLeod and MacDonell (2011), IT project failure can be seen as a breakdown in the outcomes of the software project delivery process, covering a wide variety of definitions. The classification of “IT project failure” is either directly related to the results of the software development process or it is multi-faceted encompassing “*technical, economic behavioural, psychological, political, subjective, contested/negotiated, and temporal interpretations*” (Lehtinen *et al.*, 2014: 624). Per Lehtinen *et al.* (2014), IT Project failure refers to the identifiable failure to successfully deliver on the cost, scope, schedule or quality objectives of the project.

Rectifying challenged IT projects remains a problem for many organisations and managers continue to grapple with these problems (Karlsen, 2002; Mitchell, 2006; Flynn *et al.*, 2009). These typically comprise of projects which exceed planned budgets or schedule, and ultimately end up in failure (Flynn *et al.*, 2009; Mishra *et al.*, 2015).

IT projects and the development of IT is a technically difficult and risky undertaking (Brown, 2001; Lientz and Rea, 2001; Cadle and Yeates, 2004; Iacovou and Dexter, 2004). As previously noted, there are many risks which may materialize during the lifecycle of a project, which if not timeously

raised and managed, can significantly impact on the delivery of the project (Schwalbe, 2004; Tesch *et al.*, 2007; Abdul-Rahman *et al.*, 2012). IT project risks can be viewed as a combination of factors or conditions which pose a significant threat toward the successful completion of a project (Tesch *et al.*, 2007; Abdul-Rahman *et al.*, 2012). These risks can increase the possibility of failure of a project if it is disregarded, with the loss involving increased costs, extended project timelines, increased scope and reduced quality, and ultimately reduced stakeholder satisfaction (Abdul-Rahman *et al.*, 2012).

The baseline measures for success or failure on a project need to be determined and agreed upon prior to reviewing project success outcomes (Savolainen *et al.*, 2012). Research into project success and failure have approached it from the perspective of the capability of the software to align with the needs of the stakeholders (Mcleod and MacDonell, 2011). Additionally, groups or individual stakeholders may vary in their evaluation of the degree to which an IT project is successfully delivered or not, judging it according to different criteria (Mcleod and MacDonell, 2011). It is the stakeholders who ultimately determine whether a project is a success or failure, based on the results of the project delivery (Karlsen *et al.*, 2005). Ultimately, certain stakeholders possess authority and influence as a result of information and resources they control, while other stakeholders are key as they possess the authority to determine the success or failure of a project (Karlsen, 2002). If stakeholder management is not appropriately applied on the project, this can result in unintended challenges and uncertainty to the project (Karlsen, 2002). A clear and thorough definition of project success may not be defined, and subsequently may result on the project delivering on unclear or unintended goals, leading to failure (Karlsen, 2002; Karlsen *et al.*, 2005). Added problems and uncertainty resulting from stakeholders that contribute toward project failure include poor communication, insufficient resources allocated to the project, changes in the scope of work, undesirable news about the project in the media, and negative community responses to the project (Karlsen, 2002).

Glaser (2005) suggests that projects fail for many reasons, however, failure can frequently occur because of the actions and inactions of senior management. Several factors may contribute toward IT projects going off-track due to delays in schedule and cost overruns and may include:

“lack of executive support and user involvement, inexperienced project managers, indistinct business objectives and requirements, scope creep, casual project management, ineffective use of methodologies, and use of unreliable estimates” (Iacovou and Dexter, 2004: 69).

This is in alignment with Verner *et al.* (2010) who suggest that IT development projects are affected by a series of problems, such as low organisational maturity, insufficient senior management support, poor project management, lack of funds, changes in requirements and scope, inadequate quality assurance and under-motivated project team members.

In the research into the analysis of software project failures in software product companies in order to understand the causes of failures and their relationships, Lehtinen *et al.* (2014) identified common causes of IT project failure, illustrated in **Figure 5**. This analysis is based on the existing literature on software development project failures, and indicates that the causes of failures are typically caused by project environment, tasks, methods and people (Lehtinen *et al.*, 2014).

These failures transpire in various processes, which may include management, sales and requirements, and execution (Lehtinen *et al.*, 2014).



Figure 5: Summary of the common causes of software project failure (Lehtinen *et al.*, 2014: 624)

Mcleod and MacDonell (2011) identified a list of factors which affect the outcome of IT projects. These factors, based on the framework in **Figure 6**, included people, methods and tasks.

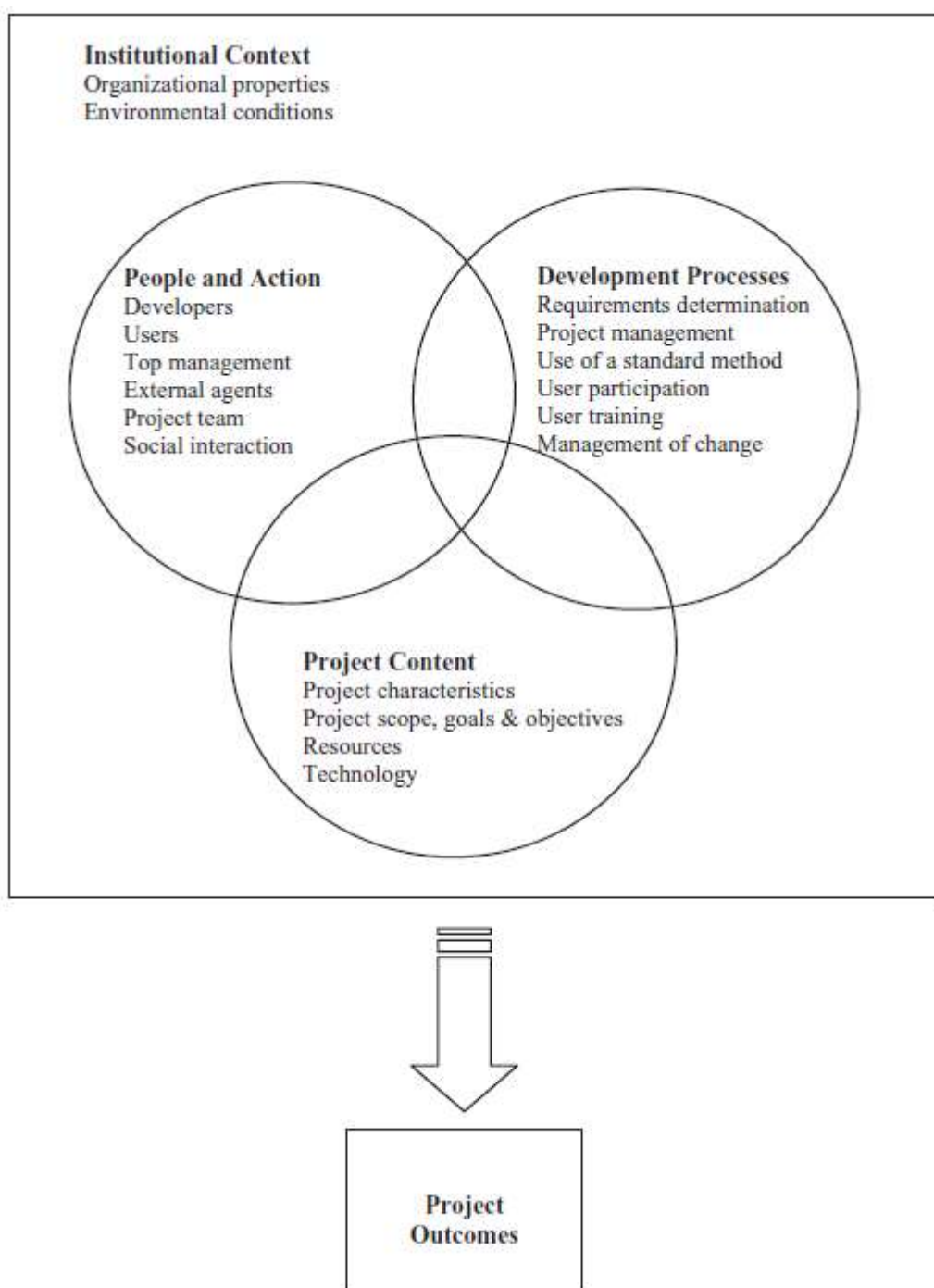


Figure 6: Framework for understanding influences on software systems development and deployment project (Mcleod and MacDonell, 2011: 27)

The source of project failure related to the people and action may arise at every action conducted, with these covering actions of users, senior management, external resources as well as the project team (Mcleod and MacDonell, 2011). Furthermore, it is recognised that several of these factors

are related and that frequently project results involve numerous factors that interrelate in complex fashion (Mcleod and MacDonell, 2011). These are represented in **Figure 6** by way of overlapping circles to indicate the relation between project content, development processes and people's actions during development, all contained within the broader framework in which IT systems development occurs (Mcleod and MacDonell, 2011). **Table 5** further elaborates on these process.

Table 5: Influences on software systems development, adapted from Mcleod and MacDonell (2011).

<i>Project content.</i>	<ul style="list-style-type: none"> • This includes factors that are typically considered as properties of the software systems project itself, including its dimensions, scope and goals, the resources it attracts, and the hardware and software used in development. • The project's properties, whether technological, strategic, or resource-related, materially influence the development outcome or are mobilized and drawn upon by various individuals or groups in their development activities and interactions with each other.
<i>Development processes</i>	<ul style="list-style-type: none"> • These include the various activities typically associated with software systems development and deployment, ranging from requirements determination and standard method-use to the management of change resulting from implementation of a new software system. • These processes reflect the ongoing development of systems development practice. • They constitute both opportunities and sites for action and interaction among the interested individuals and groups as they negotiate a particular system outcome.
<i>Institutional context</i>	<ul style="list-style-type: none"> • This includes factors related to both the organisation in which software systems development is located and the wider socioeconomic environment in which the organisation operates. • A range of contextual properties or conditions, operating across local,

national, and international levels, and including the historical circumstances from which software systems are developed and used, may shape the course of development in a software systems project by constraining or facilitating certain courses of action.

People and action	Finally, as can be drawn from these content, context, and process descriptions, consideration needs to be given to the various people, both individuals and groups, who are involved or interested in the software systems development project. Their characteristics, actions, interactions and relationships shape the development trajectory and project outcomes in multiple ways, so an understanding of their roles and actions during system development is also necessary.
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Mcleod and MacDonell (2011) provide a view around understanding how stakeholders performing their duties is essential for improving on the delivery outcomes of IT projects. Consideration is given to individual stakeholders whose actions and contribution toward the project objectives will be influenced by varying competing commitments which may originate from various areas (Mcleod and MacDonell, 2011). These may include organisational obligations established as organisational policy and practice, wider social and cultural interests, or “*sectional interests occurring as a result of the specific course of action*” (Mcleod and MacDonell, 2011: 11).

Subsequently, projects which are performing poorly have considerable negative impacts on the organisation, including:

- *Delays in Materializing the Project's Goals* – IT projects are initiated with the purpose of either solving a business problem or taking advantage of a business opportunity. Achieving its objectives are not fully realised until the system has been successfully implemented.

- *Opportunity Costs* - All costs, including human, and technological resources that are used in an unsuccessful project incur opportunity costs, as the resources and budget consumed are wasted, instead of being allocated to a project with achievable targets.
- *User Dissatisfaction and Alienation* - When the implementation of a project is delayed, users experience frustration, as they must continue using old and sometimes inefficient systems. These events may lead to unfavourable user perceptions and attitudes towards IT personnel and create misgivings about their ability to successfully develop systems. These perceptions increase resistance towards future development work; reduce trust, cooperation, and support; and lead to dissatisfaction, disuse, and rejection of systems

(Iacovou and Dexter, 2004)

While most literature focuses on identifying factors which lead to project failure, Pflügler *et al.* (2016), in their research into the analysis of the positive and negative impact of project failure on IT professional, contend that projects not only have a financial impact, but also have negative effects on the project members. Similarly, Verner *et al.* (2010), in their study into disagreements on project outcome and its impact on team motivation, found that project stakeholders should be aligned on the criteria for determining whether a project is a success or not, prior to commencement of the project. If the project team, in combination with the management, views the project to be a failure, or fail to reach agreement on the results of the project delivery, then the motivation of the team can be negatively affected (Verner *et al.*, 2010). Therefore, projects that are unsuccessful and projects with outcome disparity have comparable levels of team motivation which are lesser in comparison to projects where there is an agreement on success outcomes (Verner *et al.*, 2010).

Successful project completion requires the assistance from a strong group of supportive and prominent stakeholders, with the project manager working to facilitate the contributions via effective stakeholder management (Achterkamp and Vos, 2007).

The general consensus within the project stakeholder research is that a project has various stakeholders, whose needs and expectations can be linked or diverge from the common thread (Huang and Wang, 2006; PMI, 2013). As such, the project manager will look to gather stakeholders' input in order to delivery a project succesfully (Huang and Wang, 2006; Zwikaël, 2008).

According to Lim and Bentley (2011), when IT projects fail, the majority of reasons for this are stakeholder related. These include the lack of network connecting stakeholders on the project, or the lack of stakeholder involvement in the project (Lim and Bentley, 2011). Consequently, it is of great signivifcance to understand and forecast likely problems with stakeholder involvement at the start of the project, so that potentially disastrous problems can be mitigated, in order to prevent project failure (Lim and Bentley, 2011).

2.8 STAKEHOLDER PROJECT IMPACT

It is generally recognized in the stakeholder literature that a structure with a larger number of elements (i.e. stakeholders) is more complex and will make stakeholder management more challenging (Bourda, 2013; Aaltonen and Kujala, 2016). Understanding stakeholders, their influences and developing strategies to engage these stakeholders, which are based on analyses, has become one of the crucial capabilities within project-based organisations (PMI, 2013; Aaltonen and Kujala, 2016). Stakeholder management is at the very heart of project management, with projects being defined as temporary endeavours which affect and are influenced by a variety of diverse organisations or individuals and are very much dependent on their contributions, skills and capabilities(PMI, 2013; Aaltonen and Kujala, 2016). However, while being a clearly valued factor in the delivery of projects, stakeholder management did not receive its legitimized status as a best practice knowledge area in the Project Management Body of Knowledge until 2013 (Aaltonen and Kujala, 2016).

Per Aaltonen and Kujala (2016), in spite of the widespread and diverse research into project stakeholder management previous research has paid partial attention to abstracting and better

considering the nature of different types of project stakeholder, their pivotal characteristics, key dimensions and consequences for project management, and project delivery.

Of late, research interest has moved from tool orientation to the manner in which stakeholder management is actually applied in organisations and in how the theoretical concepts and approaches stemming from the general stakeholder research can be employed in constructing the understanding of stakeholder management in project delivery contexts (Eskerod and Huemann, 2015; Aaltonen and Kujala, 2016).

Consequently, research on project stakeholders is currently divided into distinct, fragmented and diffused research streams that address definitions, tools and stakeholders' characteristics, stakeholders' behavioural influences and stakeholder management strategies (Karlsen, 2002; Aaltonen and Kujala, 2016).

Frequently, the resources and inputs into project delivery are controlled by stakeholders, which affords the stakeholders a certain power (Karlsen, 2002; Aaltonen and Kujala, 2016). Variations in access to information or the externally controlled resources can impact the planning, organizing, staffing, and management of the project, and ultimately its successful delivery (Karlsen, 2002; Karlsen *et al.*, 2005; Aaltonen and Kujala, 2016). Therefore, as the number of stakeholders within the project increases, so would the time, resources, management costs and effort needed by project management to engage stakeholders, to effectively manage their needs, and to decide which of the stakeholders need to be included in engagement efforts and which stakeholders will have less of an influence in delivery (Bourne and Walker, 2007; Aaltonen and Kujala, 2016; Cuppen *et al.*, 2016)

Ultimately, it is the project's management process that converts inputs into outputs, which suggests the achievement of a unique outcome or deliverable (Karlsen, 2002; Karlsen *et al.*, 2005). Consequently, it is the stakeholder who eventually determines whether a project is a success, based on the project outcomes deliverable (Karlsen, 2002; Karlsen *et al.*, 2005). Based on this, we can gauge that some stakeholders have power because they control information and resources, while other stakeholders are important because they decide whether the project result

is successful or not (Karlsen, 2002; Aaltonen and Kujala, 2016). It is therefore necessary to understand the importance and management of these stakeholders in support of project delivery.

2.9 LITERATURE REVIEW SUMMARY

Organisations have been displaying an increasing reliance on IT, with many of these organisations unable to function and execute their processing and activities without IT (Snider and Parth, 2007; Letseka and Tiko, 2011). Whether organisations choose to outsource or develop IT solutions internally, they are invariably delivered via a project (Snider and Parth, 2007; Letseka and Tiko, 2011). Projects are dynamic and multidimensional undertakings, which have various factors interacting and engaging in their execution (Gemino *et al.*, 2007; Snider and Parth, 2007; Silva and Costa, 2014).

Effectively managing IT projects is a complex and often risky endeavor, as there are various factors that could impact the successful delivery thereof (Iacovou and Dexter, 2004; Mitchell, 2006; Lopes and Manas, 2013). These factors may include: *“lack of executive support and user involvement, inexperienced project managers, unclear business objectives and requirements, scope creep, casual project management, ineffective use of methodologies, and use of unreliable estimates”* (Iacovou and Dexter, 2004: 69). Furthermore, additional impactful factors can be ascribed to the individuals involved, dialogue amongst the individuals who require the IT solution, and those who are expected to deliver the IT solution (Letseka and Tiko, 2011; Lopes and Manas, 2013).

Successfully delivering on the expected value from IT projects remains a challenge for many organisations, with industry research continuing to identify the need to improve overall project delivery (Gemino *et al.*, 2007; Kutsch and Hall, 2009). Despite IT becoming more dependable, efficient and inexpensive, the expenditure, complexity and associated risks of IT projects remain a challenge for organisations (Marchewka, 2003). Furthermore, the combination of escalating dependence on information technology and the increasing expenditure of delivering these projects

suggest that the performance of IT projects represents a key endeavor for organisations (Gemino *et al.*, 2007; Snider and Parth, 2007; Kutsch and Hall, 2009).

Karlsen (2002) suggests clients, users and public authorities tend to place significant demands on project execution, and it is therefore vital to effectively manage these stakeholders. It is key to develop an understanding that is able to garner an appreciation and trust, leading to constructive working relationships (Karlsen, 2002).

In today's business environment, virtually every project occurs in a framework where stakeholders play a key role in the accomplishment of the deliverables, with these projects continuing to be influenced by the actions and decisions taken by stakeholders (Karlsen, 2002). As a result, stakeholders are also a key cause of uncertainty in projects, with this uncertainty encompassing knowledge of who the relevant stakeholders are, how they could potentially influence a project, and what their motivations are in regards to how their actions affect project delivery (Ward and Chapman, 2008).

During the execution of a project, the varied stakeholders involved recognize that they have various interests in the project (Cadle and Yeates, 2004; Sutterfield *et al.*, 2006; PMI, 2013). Based on their perceived interests in the project, stakeholders act in a manner in which they feel will aid them in achieving their desired project goals and objectives, which may either be against or aligned with the project manager's project vision and objectives (Sutterfield *et al.*, 2006; PMI, 2013). Consequently, it is essential that the project manager understand the objectives of all stakeholders' to allow for the effective management of their expectations (Huang and Wang, 2006; Sutterfield *et al.*, 2006).

Inherently, to attain the desired outcome of successful project delivery, the project manager must be capable of managing the interests of numerous stakeholders throughout the entire execution of the project (Sutterfield *et al.*, 2006; PMI, 2013).

2.10 PROPOSED RESEARCH MODEL

This chapter has explored the key issues prevalent in the literature. This encompassed the view of project stakeholders who may have an influence on the success of a project, along with process of identifying and classifying stakeholders; the factors which constitute project stakeholder management and the impact of stakeholders on IT project performance.

Based on the literature review, a research model has been developed which will be used to understand the impact and management of stakeholders on IT projects. **Figure 7** is a diagrammatic representation of the proposed research model, adapted from Karlsen (2002); (PMI, 2013), in combination to those identified by Cadle and Yeates (2004), illustrating the interaction between the stakeholder group and the project. Furthermore, the model will assist with the previously noted objectives of this study:

- Identify which stakeholders are most important to the project, and therefore allow for an improved approach to engaging and managing these priority stakeholders.
- Establish which stakeholders impact the project by causing problems on the project and who pose greater risk to its effective delivery.

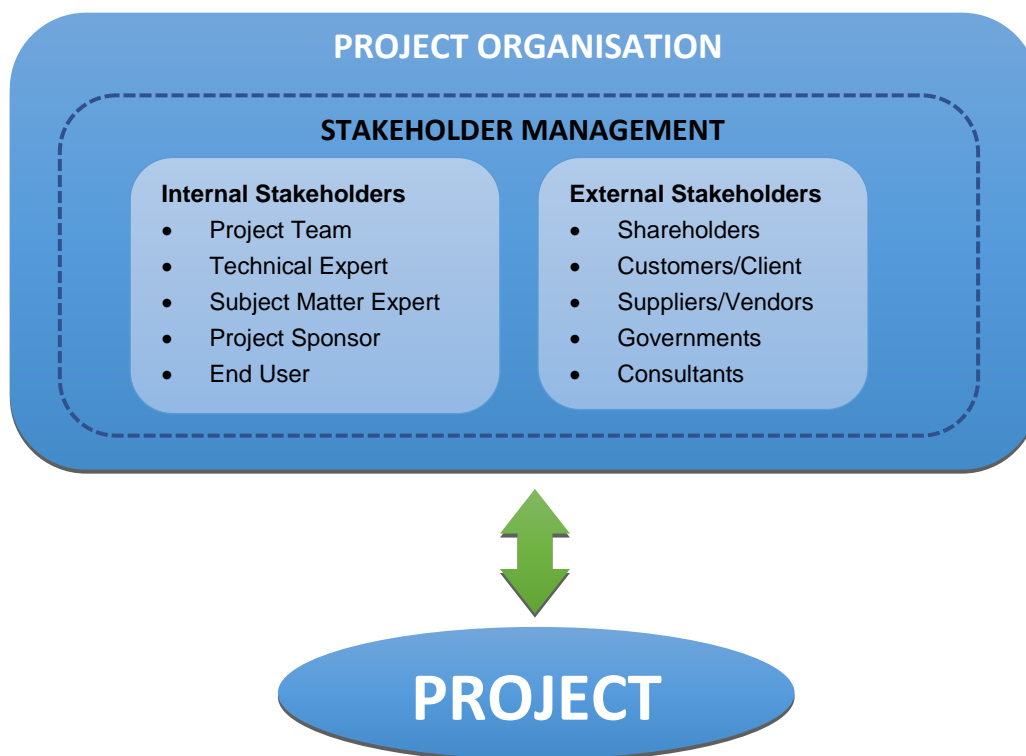


Figure 7: Proposed research model

3. RESEARCH METHODOLOGY

3.1 RESEARCH PURPOSE

The philosophical approach of this research was exploratory as it intended to identify a new understanding into the impact and management of stakeholders on IT projects. This was accomplished by identifying which stakeholders are the most vital on a project and which stakeholders have the greatest potential to negatively impact project delivery.

3.2 RESEARCH PHILOSOPHY

Research philosophy relates to the development of knowledge and the nature of that knowledge (Seale, 1999). The research philosophy adopted contains important assumptions about the way in which you view the world (Seale, 1999; Gray, 2014). According to Seale *et al.* (2004), there are three epistemological classes: positivism, interpretivism, and critical studies. Based on these, the primary theoretical considerations available are positivisms and interpretivism, which are considered to (arguably) be among the most influential (Gray, 2014).

With positivism, ideas only warrant their incorporation into knowledge if they can be tested by way of empirical experience (Seale, 1999; Creswell, 2014; Gray, 2014). Positivists see the natural sciences as progressing through the patient buildup of facts about the world in order to produce generalizations known as scientific laws (Seale, 1999; Seale *et al.*, 2004; Gray, 2014). Positivism applies quantitative and experimental approaches to test “*hypothetical-deductive generalizations*” (Amaratunga *et al.*, 2002: 18). Amongst the chief implications of this method is the need for independence of the researcher from the subject being observed (Amaratunga *et al.*, 2002).

Interpretivism is an epistemology that advocates that it is essential for the researcher to appreciate differences between humans in our role as social actors (Seale, 1999; Seale *et al.*, 2004). Inquiry with this method applies a qualitative approach to “*inductively and holistically understand the human experience in context-specific settings*” (Amaratunga *et al.*, 2002: 19). These theoretical perspectives are further outlined in **Table 6**.

Table 6: Theoretical Perspectives (Amaratunga *et al.*, 2002; Creswell, 2014; Gray, 2014)

Philosophy	Description
Positivism	<ul style="list-style-type: none"> • Reality consists of what is available to the senses – that is, what can be seen, smelt, touched, etc. • Inquiry should be based upon scientific objective observation (as opposed to philosophical speculation), and therefore on empirical inquiry • Results of research will tend to be presented as objective facts • Lends itself toward the quantitative approach • Can provide wide coverage of the range of situations
Interpretivism	<ul style="list-style-type: none"> • Interpretivism asserts that natural reality (and the laws of science) and social reality is different and therefore requires different kinds of method. • The world is interpreted through the classification themes and schemas of the mind • Lends itself toward the qualitative approach • Data-gathering methods seen as more natural than artificial

The philosophical perspective for this study informs the interpretive and explorative approach. The aim of this study was to identify and understand the importance and management of stakeholders on IT projects. The interpretive approach was applied as it assumes that individuals generate and link their individual perception as they interact with the world around them, through the understanding of their environment, thereby facilitating the gathering of richer data (Orlikowski and Baroudi, 1991). Furthermore, it is noted that the interpretivist perspective is highly suitable in the case of business and management research, particularly in such fields as organisational behaviour, marketing and human resource management (Orlikowski and Baroudi, 1991).

3.3 RESEARCH APPROACH

There are 3 main research approaches: (a) qualitative, (b) quantitative, and (c) mixed methods. Qualitative and quantitative should not be viewed as inflexible, polar opposites, but rather they represent alternate ends on a continuum (Creswell, 2014). Mixed methods resides in the middle of this continuum, as it includes elements of both qualitative and quantitative approaches (Seale, 1999; Creswell, 2014).

Qualitative research is an approach for understanding the meaning individuals or groups attribute to “*social or human problem*” (Creswell, 2014: 5) . This approach involves developing questions and procedures, with data typically obtained in the participant’s environment, and data analysis inductively building from specifics to general themes and the researcher constructing interpretations of the meaning of the data (Seale, 1999; Amaratunga *et al.*, 2002; Creswell, 2014; Gray, 2014). A key feature of this approach is that it allows the researcher to focus on naturally occurring, regular events in natural surroundings, presenting a view on what the real life experience is like from the participants perspective (Amaratunga *et al.*, 2002).

Quantitative research is an approach for testing objective theories through scrutinizing the relationship among variables and data (Amaratunga *et al.*, 2002; Creswell, 2014; Gray, 2014). This data, in turn, can be measured, generally via instruments, to allow for numbered data that can be analyzed using statistical procedures (Creswell, 2014; Gray, 2014; Laurie and Jensen, 2016). The subject under analysis is therefore measured through objective means, rather than being inferred subjectively (Amaratunga *et al.*, 2002).

Mixed methods research is an approach to inquiry which includes gathering both quantitative and qualitative data, combining and integrating the two sets of data (Creswell, 2014; Laurie and Jensen, 2016). The principal assumption of this approach is that through combining the qualitative and quantitative methods, it provides the research with a more thorough understanding of the research problem than either approach individually (Creswell, 2014; Gray, 2014; Laurie and Jensen, 2016). **Table 7** provides an overview of these research methods.

Table 7: Research Approaches, adapted from Creswell (2014)

Quantitative	Qualitative	Mixed-methods
Pre-determined	Emerging methods	Both predetermined and emerging
Instrument based	Open-ended questions	Both open- and closed-ended
Performance data, attitude data, observational data, and census data	Interview data, observation data, document data, and audio-visual data	Multiple forms of data drawing on all possibilities
Statistical analysis	Text and image analysis	Statistical and text analysis
Statistical interpretation	Themes, patterns interpretation	Across databases interpretation

For the purpose of this study, a mixed-methods approach was selected as it was the researcher's intention to gather both quantitative and qualitative data. Furthermore, the mixed-methods approach provides a more complete understanding of the research problem than either quantitative or qualitative alone (Creswell, 2014; McKim, 2017).

As noted by Creswell (2014), mixed methods is chosen because of its strength of drawing on both qualitative and quantitative research and reducing the limitations of both approaches. Furthermore, it is also an ideal approach if the researcher has access to both quantitative and qualitative data, as is the intention of this research (Creswell, 2014; McKim, 2017). It should also be noted, that in using this approach, there is a need for significant data collection, the time-consuming nature of analyzing both sets of qualitative and quantitative data, and the need for the researcher to be familiar with both quantitative and qualitative forms of research (Creswell, 2014).

Additionally, in order to further assist the researcher, a Convergent Parallel Mixed Methods Design was followed. With this approach, the researcher collects both quantitative and qualitative data, analyses the data separately, and then compares the results to determine if the findings confirm or disconfirm the data sets (Creswell, 2014; McKim, 2017).

3.4 RESEARCH SAMPLE

In selecting the respondents, several considerations were made when deciding on the sample for the distribution of the research instrument. A key factor in constructing the research approach is that the participants selected will be representative of the target population. As the focus of this research was on IT projects, it was determined that the research sample would only focus on IT professionals. More specifically, the target population of this research was restricted to IT project managers and or IT managers working in an IT project environment. Participants were chosen as a result of their involvement on IT projects, with an IT project classified as a project relating to the delivery of a service to implement systems, typically including various hardware and software deliverables (Zwikael, 2008; Joseph *et al.*, 2014). Participants were primarily selected based on their accessibility, availability, and eagerness to participate in this research study. As a result, convenience sampling, where individuals of the target population that meet certain criteria, such as *“easy accessibility, geographical proximity, availability at a given time, or the willingness to participate”*, was utilized (Etikan *et al.*, 2015: 2).

Furthermore, project managers and IT managers were selected as the target participants for this research as they are generally better positioned to support the researcher in providing understanding and insight into the research focus, being individuals who are at the *“management center of the different stakeholders and should manage their expectations to achieve the project success”* (Lopes and Manas, 2013: 169). The researcher obtained access to these participants via a directory of IT project managers and IT managers acquired through business contacts.

3.5 DATA COLLECTION STRATEGY

The approach to data collection that is selected determines the kinds of data that the researcher has access to, and consequently shape analyses (Price and Jewitt, 2013; Marshall and Rossman, 2016). As a mixed-methods approach will be followed, interviews were conducted, along with a survey questionnaire. The benefit of this approach is that it allowed the researcher to gather large

amounts of data quickly, as well as allowing the researcher to understand the meanings that people hold for the daily activities, in relation to that of the research topic (Marshall and Rossman, 1999; Silverman, 2004; Marshall and Rossman, 2016). Furthermore, as noted by Silverman (2004: 126), interview participants “*construct not just narratives, but social worlds*”, which allows the researcher to generate data which allows for a genuine insight in the experiences of the participant.

For the purpose of this study, the collection instrument comprised of semi-structured interviews, supplemented by a brief survey questionnaire, which were used to gain an understanding around the impact and management of IT project stakeholders. A five-point Likert scale was utilized in the questionnaire. The advantages of this scale is that the consideration criteria is certain and easy to use and questions are limited but provide higher reliability than other rating scale types (Chomeya, 2010). Furthermore, the Likert scale is easier to use and understand both for the researcher and the respondent, while also allowing for an simpler coding and interpretation process (Hasson and Arnetz, 2005).

The arrangement of the interviews was face-to-face and semi-structured. This approach allowed for the exploration of a few general topics to help reveal the participants views while respecting how the participant frames and structures responses (Marshall and Rossman, 1999; Marshall and Rossman, 2016). In addition, participants were provided with consent letters inviting them to contribute to this study (Refer to Appendix A and B). Participants were afforded the freedom to talk openly and provide insight into their perspectives and experiences in regard to the impact and management of stakeholders, with the interviewer intermittently intervening to ensure the participants' responses remained applicable to the area of research, and interview questions presented. As such, the participants perspectives on the topic of interest were allowed to unfold as the participants viewed it, and not as the researcher viewed it, allowing the researcher to convey the stance that the participants perspectives are important and useful (Marshall and Rossman, 1999).

Participants who made themselves available to be interviewed were made welcome and thanked for their agreement to participate. To establish clarity, the researcher verbally reiterated the aims of the research, process for data collection and gave assurances about confidentiality and anonymity, with consent forms being signed by each participant.

The interviews conducted with the participants were recorded to ensure the accuracy of the data. Furthermore, the interviews were transcribed using Microsoft Excel, thereby allowing the researcher greater control around coding of the data, as well as providing better structure in regard to linking and managing the data during data analysis. The process of recording and preserving the data and meanings, along with the combined transcription assisted with increasing the efficiency of the data analysis (Marshall and Rossman, 2016).

The duration of the interviews varied in length. The interview was guided by the questions listed, exploring the participants experiences on stakeholder management. Where required to complete the survey portion of the interview, the researcher clarified the definition of the stakeholder groups listed. Many interviews had a natural termination point, where the participant had provided sufficient feedback and where it was felt by the researcher that any further prompting would be unnecessary. Due to the nature of their role, certain participants were limited by their own time constraints and other commitments. As a result, the duration of interviews was mostly determined by the participants.

3.6 RESEARCH INSTRUMENT

The research instrument used for this research was adapted from those used by Moodley (2008), as this is a previously validated research instrument focusing on the impact and management of project stakeholders. A copy of the interview questionnaire is provided in Appendix C. The questionnaire was divided into the following two sections:

Section A: Demographic profile of the participant. The purpose of this section was to obtain an overview of the participants demographics, including role, experience and number of projects worked on

Section B: Impact and Management of Stakeholders. This section intended to gather information around the impact and management of IT project stakeholders. This was aided by a brief survey which participants had to complete (Appendix C) following which the researcher probed for detail regarding survey results, to gain a further understanding of the participants' preferences. Prior to completing the survey, the researcher made every effort to ensure participants were clear on the stakeholders and their functions, indicated within the survey.

The survey used a five-point Likert-scale with a weight assigned to each selection. This was used to rate the specified group of stakeholders, firstly with regards to importance, and then regarding uncertainty and issues.

3.7 RESEARCH INSTRUMENT VALIDATION

The researcher sought to validate the intended research instrument to assess the face and content validity (Seale *et al.*, 2004). The validation was achieved by conducting a pilot study with a single IT project manager to assess the reliability and validity of the research instrument. This allowed the researcher to identify and reflect on any ethical and structural considerations which might occur during the research study.

Following the pilot interview, updates were applied, where required, to reword and/or remove certain items deemed ambiguous, or which did not add value to intended research objectives.

Consequently, the below question regarding 'project identification' was removed from the research questionnaire:

Why would you say that the system is effective/not effective in identifying all project stakeholders?

This amendment was applied as the question provided no value to the researcher's objectives in understanding stakeholder importance and uncertainty. This review process provided the researcher the confidence to progress with the collection of research data for this study.

3.8 DATA ANALYSIS TECHNIQUE

The primary approach to the analysis of the qualitative data in this research was directed by the thematic analysis approach, as categorized by Braun and Clarke (2006). Thematic analysis is an approach that can be applied to encode qualitative information (Boyatzis, 1998). Furthermore, its application extends to identifying, analysing and describing themes contained in the data gathered in the data collection procedure (Braun and Clarke, 2006). This approach allows the researcher to systematically categorise the content of the data, in order to identify the relationships amongst the themes, and describe the data in further detail (Braun and Clarke, 2006)

An advantage of this approach is in its flexibility, as it provides a formative and valuable research method, with the prospective to deliver a rich and detailed description of the data collected (Boyatzis, 1998; Braun and Clarke, 2006). Additionally, a further advantage of this approach, is that it does not require the detailed theoretical and technical knowledge of other approaches, such as Grounded Theory of Discourse Analysis, as it offers a more accessible form of analysis, specifically for those new to qualitative research (Braun and Clarke, 2006).

3.8.1 THEMES

A theme is a trend found in the data that, at the minimum, describes and organises possible observations or, at the maximum, interprets aspects of the phenomenon (Boyatzis, 1998). It allows the researcher to identify something significant in the data collected, in relation to the research topic, and represents “*some level of patterned response or meaning*” within the data collected (Braun and Clarke, 2006: 82). According to Braun and Clarke (2006), a key consideration while assessing and reviewing data for themes is to consider what constitutes a theme.

The general view relates to frequency, where there will preferably be a number of examples of the theme across the data set (Braun and Clarke, 2006). However, more instances do not automatically suggest the theme is of greater significance (Braun and Clarke, 2006). It is principally up to the researcher to determine what constitutes a theme, as it may be afforded significant commentary in certain data items, while very few or none in others (Boyatzis, 1998; Braun and Clarke, 2006). While thematic analysis allows the researcher the flexibility to determine themes and occurrence in many ways, it is vital that the researcher remains consistent in how this is applied across the data set (Braun and Clarke, 2006). For the purpose of this research, the researcher was focused on themes relating to the research questions.

The approach to thematic analysis applied in this research study is the approach defined by Braun and Clarke (2006), which consists of 6 phases, as listed in **Table 8**.

Table 8: Process of Thematic Analysis, adapted from (Braun and Clarke, 2006)

Phase	Description
1. Familiarization with the data	Researcher should immerse and familiarize themselves with the Data, reading and re-reading the data and noting any preliminary key observations
2. Producing codes	Entails generating labels for key features of the data which is relevant to the research question. The researcher codes all data items and ends this phase by collating all their codes and relevant data extracts.
3. Identifying themes	Codes are aggregated into potential themes, whereby themes are constructed via a process of collating all relevant codes. The

	researcher ends this phase by collating all the coded data relevant to each theme.
4. Reviewing themes	Reviewing the themes in relation to both the coded extracts and the full set of data. The researcher will reflect on whether the themes tell a convincing and compelling story about the data, and start to describe the nature of each individual theme, and the relationship between the themes.
5. Defining and naming themes	Each theme is reviewed and refined, to identify the essence of the theme, and constructing a clear classification for each theme
6. Writing up the report	The write-up involves assembling the themes identified into a constructive and coherent description in order to produce a report of the analysis conducted

The quantitative data was analysed using descriptive statistics and weighted average.

As noted, a convergent mixed-methods approach was followed. With this approach the data was analysed separately and then brought together. The researcher will first report the quantitative statistical results and followed by a discussion of the qualitative findings (e.g., themes) (Creswell, 2014). This side-by-side review allows the researcher to compare the results within a discussion, by presenting first one set of findings (quantitative) and then the other (Qualitative) (Creswell, 2014).

3.9 RESEARCH LIMITATIONS

As noted by Marshall and Rossman (2016), all proposed research projects have limitations. The primary limitations of this research were as follows:

- Researcher's subjectivity: The question of subjectivity is open and recognized as a constraint in this research study however the researcher maintained every effort to minimize this limitation.
- Availability of certain stakeholders: Due to the nature of the role of the participants chosen for this research, it proved challenging to secure the required time needed to conduct interviews with the participants, as a result the scarceness of available time of senior IT stakeholders.

3.10 ETHICAL CONSIDERATIONS

Ethical issues are prevalent in any kind of research (Orb *et al.*, 2000). Furthermore, the nature of ethical problems within qualitative research studies is subtle and different in comparison to those experienced in quantitative research (Orb *et al.*, 2000). These may include the researcher/participant relationship, the researcher's subjective interpretations of data, and the research design itself (Ramos, 1989). It may prove difficult to predict ethical dilemmas that may arise from the data collection approach, however the researcher needs to be conscious of the sensitive issues and possible conflicts of interest (Orb *et al.*, 2000).

As such, every endeavor was made to guarantee that the identity of all the participants, their companies, and the information and opinions provided by them, remained completely anonymous. The participants voluntarily took part in the interviews, with participants providing their consent to be involved. No personal sensitive details of the participants were collected. Participants were fully informed about the nature of the research. The researcher also endeavored to ensure that research participants were protected from undue intrusion, distress, indignity, physical discomfort, personal embarrassment, or psychological or other harm.

All interviews were conducted in the participant's environment to ensure participant comfort with the research and interview process. As noted by Orb *et al.* (2000), the intention of the researcher is to listen to and observe the participant in their natural environments. Therefore, a balanced research relationship and comfortable setting, will "*encourage disclosure, trust, and awareness of potential ethical issues*" (Orb *et al.*, 2000: 94).

The interview research protocol was provided to the University of Cape Town Ethics Committee for review and approval, with interviews commencing once approval was granted. The interview instrument was also reviewed and approved by the Ethics Committee at the University of Cape Town. All data and information collection during this study was kept strictly confidential, with the researcher maintaining sole access to the data.

3.11 RESEARCH METHODOLOGY SUMMARY

This chapter has outlined the research process that was utilized in to address the research problem raised. A mixed method interpretive philosophy was utilized, with data being collected through semi-structured interviews. The analysis of the data in this study was guided by the thematic analysis approach. A summary of the research methodology employed in this study is presented **Table 9**.

Table 9: Summary of research methodology

Research philosophy	Interpretive
Research approach	Mixed-method
Data collection method	Semi-structured interviews Survey Questionnaires
Data analysis technique	Thematic analysis Descriptive Statistics

4. DATA ANALYSIS AND RESEARCH FINDINGS

This chapter describes analysis and results of the data obtained in this research study. It includes introductory data analysis using descriptive statistics to provide an overview of the participants, as well as the analysis of the survey data. Furthermore, the themes identified in support of addressing the key research questions are presented.

4.1 PARTICIPANT DEMOGRAPHICS

In order to assist the researcher in providing background and context, demographic information on each of the participants were collected. As previously noted, as the focus of this research was on IT projects, it was determined that the research sample would only focus on IT professionals. More specifically, the target population of this research was limited to IT project managers and or IT managers working in an IT project environment. Exploratory data analysis was conducted to understand the data collected and the characteristics of the research sample. The demographics for each participant are displayed in **Table 10**:

Table 10: Participant demographics

Participant	Role	Years of experience	Total number of projects worked on in last 5 years	Average value of projects
P1	Project Manager	5-10	9-15	Less than 2 million
P2	IT Manager	5-10	> 15	5 – 10 million
P3	Project Manager	11-20	9-15	5 – 10 million
P4	Project Manager	5-10	> 15	11 – 20 million
P5	Project Manager	5-10	> 15	20-40 million
P6	Project manager	5-10	4 – 8	3 – 5 million
P7	Project Manager	11-20	9-15	5 – 10 million
P8	Project Manager	5-10	9-15	11-20 million
P9	IT Manager	> 20	> 15	11- 20 million
P10	Project Manager	0-4	4 – 8	Less than 2 million

A total of 10 participants were interviewed for this research study. **Figure 8** highlights that of the 10 participants, 8 were IT project managers (80%) and 2 were IT managers (20%). The interview participants are employed in a range of sectors varying from Retail to Health, and Financial services.



Figure 8: Proportion of participants

As is indicated in **Figure 9**, 6 of the participants had experience of 5 to 10 years working in the IT industry. This experience proved invaluable when providing feedback to the interview questionnaire.

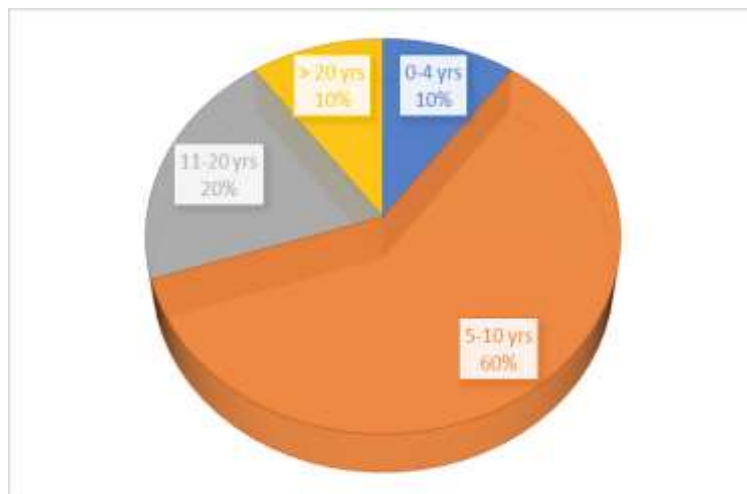


Figure 9: Participant years of experience

When reviewing the average value of projects worked on, **Figure 10** indicates that 3 of the participants worked on projects with an average value of between R5 million and R10 million Rand, with a further 3 of participants working on projects of value between R11 million and 20 million. Only 1 of the participants had worked on projects with an average value of between R20 million and R40 million.

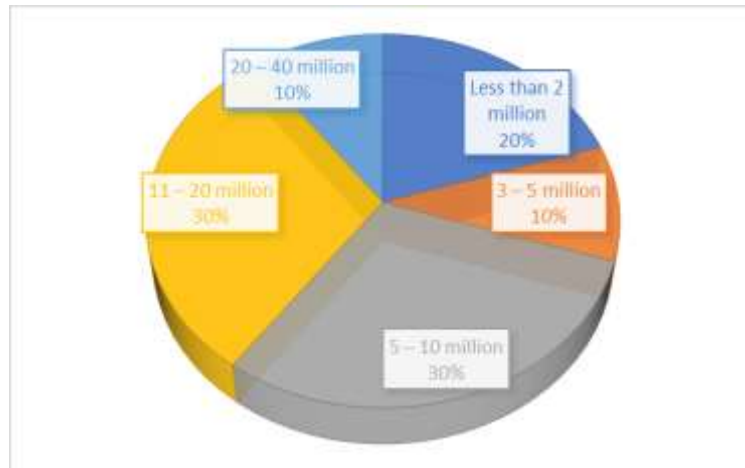


Figure 10: Average value of projects worked on

When assessing the total number of projects participants had worked on in the last 5 years, 4 of participants worked on a total of 9 to 15 projects within the last 5 years, with a further 4 of participants worked on a total of 15 or more projects within the last 5 years. The remaining 2 participants had worked on a total of 4 to 8 projects within the last 5 years. This is summarised in **Figure 11**.

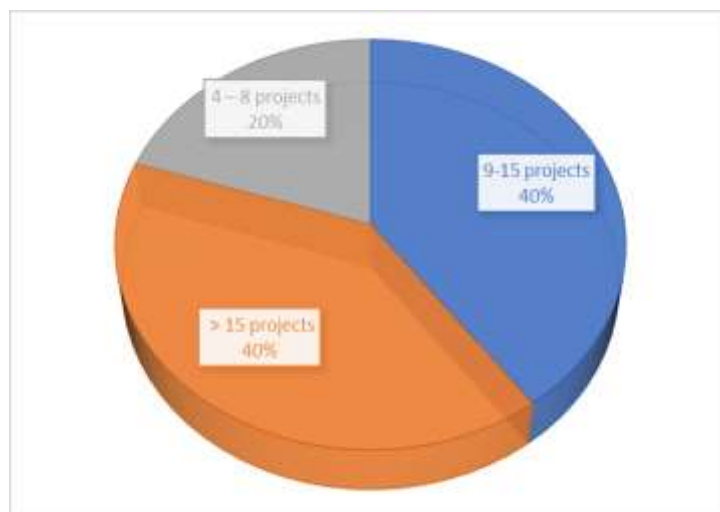


Figure 11: Total number of projects worked on in last 5 years

4.2 PRIMARY RESEARCH FINDINGS

Thematic analysis was applied as the primary data analysis method, to identify, analyse and detect themes within the data set. This approach was utilised as it allowed the researcher to organise and describe the data in rich detail in order to interpret the many aspects of the research topic (Braun and Clarke, 2006). Furthermore, a theoretical thematic approach was applied as the intention of the research was to code for specific research questions.

Through reviewing the interviews transcribed, the key concepts in the discussions were documented and grouped into a fixed set of codes for each research question. These codes were sufficiently diverse to prevent replication, and adequately inclusive enough to be beneficial. Thereafter, themes were identified based on their significance, as contained in the data, in regards to the research questions. The section below is organised around the interview questions, providing a view of the key themes identified.

4.2.1 *ENGAGEMENT AND IMPORTANCE OF STAKEHOLDERS*

Stakeholder Engagement

Question 1 sought to determine the importance of engaging with stakeholders by asking participants whether they viewed interaction with stakeholders during the lifecycle of a project key to the success of its delivery. All the participants unanimously agreed that engaging with stakeholders during the lifecycle of a project is key to its successfully delivery.

Question 2 required the participant to elaborate on their responses to Question 1, in order to gain a further understanding of the participants' views. The codes were generated based on the research focus on the importance of engaging with project stakeholders. These were then grouped into potential themes, which the researcher then further reviewed and revised, in order to ensure that the theme identified correctly mirrored the analysed data. The outcomes of the prominent themes identified in the analysis are listed below:

- EXPECTATION MANAGEMENT

Most participants emphasised the importance of managing project stakeholders' expectations around project delivery. This was identified as a requisite function in order to ensure the project was ultimately successfully delivered.

“Stakeholders are the people whose expectations need to be managed... its more awareness, expectation alignment and involvement in key decision making (P7)”.

It was also noted that project delivery is significantly restricted, to the point of non-delivery, without any engagement with project stakeholders. This was evident via participant responses, *“I would imagine not engaging with stakeholders means that there’s no delivery, and therefore nobody is affected ultimately (P1)”*, and *“Unless you are engaging with those (IT project) stakeholders, you setting yourself up for failure (P2)”*. The majority of participants also noted the importance of aligning with stakeholders on project delivery. This was viewed as critical in ensuring the project is correctly managed throughout the various project phases, as *“Project delivery doesn’t, it doesn’t happen in isolation (P5)”*.

Additionally, participants also cited the importance on what is required around delivery. Stakeholder participation is vital to ensuring all required deliverables are met in order to deliver on what is required, *“So you’ve got various types of stakeholders on a project, stakeholders who are going to do the work, stakeholders who have a vested interest in the work being done (P5)”*. This is key to ensuring the necessary input is provided by stakeholders and ensuring that the correct solution is ultimately delivered.

“Often the disparity comes in when they believe what you are delivering one thing and you’re actually delivering another thing, so it’s about keeping them close, getting their buy-in and helping them to understand where you’re at throughout the course of the project (P3)”.

- DECISION MAKING

Ensuring that stakeholders are engaged around making project decisions was highlighted by all participants, and noted as a key theme. As cited by one participant, “*Because things change, things don’t go according to plan and the stakeholders are the people that we often need to lean on in order to make decisions* (P7)”. Having awareness on the importance of engaging with stakeholder in making project decisions is seen as a key factor in ensuring successful project delivery.

Additionally, participants noted the influence of key decisions taken by stakeholders on project outcomes, and delivery success.

“Sometimes, often actually, there’s issues that arise, that leads to change, or even risks, that requires input from the stakeholders, where they need to make a decision. This decision has a big impact on the direction and outcomes of the project, so that’s why it’s important to engage with them, involve them, so that they can make these decisions and support the project manager (P10)”.

The majority of project managers cited engaging with stakeholders in decision making as key to supporting the project manager in ensuring that the project is successfully delivered, “*On all my projects, I engage with the stakeholders around all project decisions* (P8). It was also highlighted that in most cases, the project manager needs to engage with his senior stakeholders where there are decisions which may impact on the success of the project, as “*The project manager is just responsible for the project, while the key stakeholders are accountable, so it’s important to engage them where there’s a decision that can affect the outcomes* (P3)”.

Stakeholder Identification

Question 3 was aimed at identifying whether a formalised approach existed within the participants organisation for identifying project stakeholders. Participants were asked whether they agree or

disagree with the following question, “To what extent do you agree that your organisation has a formalised system for identifying project stakeholders?”

As indicated in **Figure 12**, the majority (60%) of the participants agreed that a formalised system for identifying stakeholders existed in their organisation, while just under half (30%) had a neutral view, and were uncertain whether a formalised system existed in their organisation

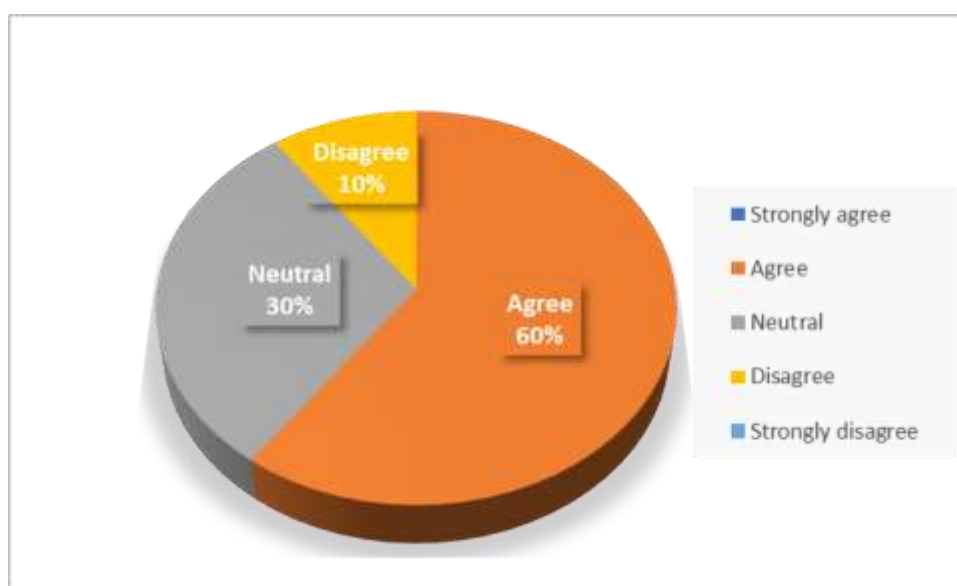


Figure 12: System for stakeholder identification

Question 8 was aimed at addressing research question 3, by determining whether participants considered failure to identify and engage with stakeholders to have a negative impact on project delivery. Participants were asked, “To what extent do you agree with the statement that - failure to identify one or more stakeholders negatively affect IT project outcomes”. All the participants unanimously agreed that failure to identify one or more stakeholders had a negative impact on the delivery of the project.

The focus of question 9 was to elicit feedback from participants on their responses to question 8, by asking them to elaborate by providing reasoning on their responses. Codes were derived based on the specific interest on whether failure to identify one or more stakeholders negatively affect IT project outcomes. The results of the dominant theme identified in the analysis are listed below.

- **RISK AND SCOPE MANAGEMENT**

While all participants agreed that failure to identify stakeholders had the potential to negatively impact on the delivery of the project, it was highlighted that the severity of the impact largely depends on the type of stakeholder which has not been identified, along with ensuring the “*right stakeholders are identified* (P10)”.

“The impact on that particular stakeholder set, it depends on how much the project impacts them, it depends on how much input they are required to give into not only the project, but the final piece of work, the final delivery (P1)”.

Participants noted that identifying stakeholders earlier on in the project lifecycle would facilitate a more positive outcome in project delivery. This was raised as particularly key around requirement management, as stakeholders who are identified late have the propensity to introduce scope changes which may impact project costs and timelines.

“Depending on who the stakeholder is, if there’s a gap in the composition of the project team, and you only bringing people on board way too late in the process, you either going to deliver a project that doesn’t satisfy the need, and you going to end up having to redo, or having to rework a lot of the stuff that’s already been done (P2)”.

Participants also noted that when stakeholders are identified and engaged, projects are more liable to progress with minimal concern regarding stakeholder uncertainty, and the project would be able to achieve its overall objectives. As noted by one participant, “*you could miss out a key stakeholder who’s going to add significant value to the project in terms of helping you to understand from a business perspective (P3)”.*

The majority of participants noted that by identifying key stakeholders, and ensuring expectations and priorities are well understood, through engagement, the project manager will be better

positioned to create plans and devise a communication approach which is comprehensive and inclusive of stakeholder needs.

Additionally, participants highlighted that identification of key stakeholders allows for improved management of risks, as these stakeholders will offer feedback with respect to identifying potential risks along with options for managing and mitigating these. Participants noted that stakeholders who may be resistant to the change and not identified may create a significant risk toward the project.

“So if you have not identified someone key to the project either they are someone opposed to the change that you’re trying to deliver/implement, so they can actively look to try and derail that or if you haven’t identified someone key to that change in order to make it happen and you do that later on (P5)”.

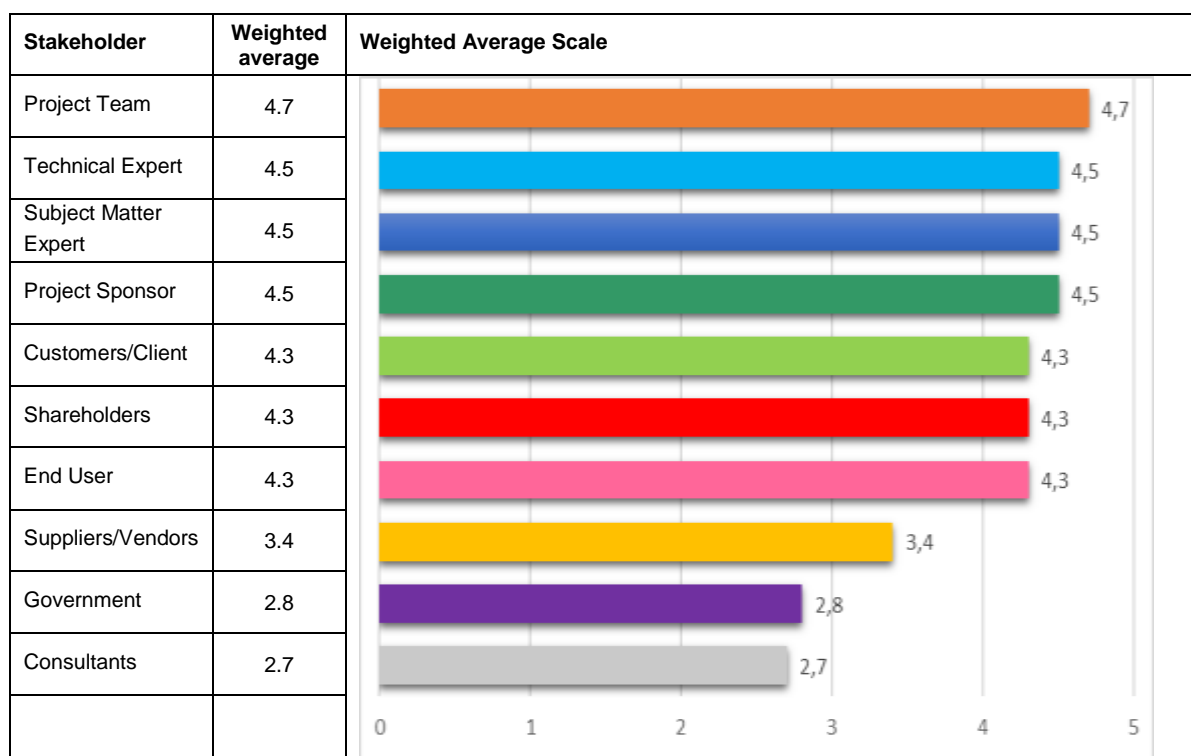
A further key consideration raised by one participant (P3) was the not all stakeholders need to be engaged throughout the entire lifecycle of the project, as there may be different stakeholders which will need to be engaged at different phases.

Stakeholder Importance

The primary focus of question 4 was to address the first research question, namely, evaluating the importance of IT stakeholders with regards to their impact on the project. **Table 11** provides a view of the descriptive statistics used to examine IT project stakeholder importance, which provided responses to the first research question. The Likert-scale used ranged from 1 to 5, with 1 = not important stakeholder and 5 = very important stakeholder. A weighted average was then used to determine the highest-ranking stakeholders, based on responses received. As is evident from **Table 11**, the highest-ranking stakeholders were the **project team, technical expert, subject matter expert, and the project sponsor**. The data indicates that while the project team is seen

as the most important stakeholder, there is no significant difference in importance between the technical expert, subject matter expert, and the project sponsor.

Table 11: Stakeholder Importance Ranking



From Table 11, it is also evident that the least significant stakeholders are government and consultants. A further notable finding in the results is that customers/clients, shareholders and end users were all perceived as equally important.

Question 5 asked participants, “Of the stakeholders who you’ve rated as highly with regards to their importance, can you please elaborate on why you have rated them highly?”, in order to gain a further understanding of participants views on the stakeholders they deemed most important.

As previously noted, the highest-ranking stakeholders with regards to importance, were the project team, technical expert, subject matter expert, and the project sponsor. Below are the results of the dominant themes identified for each of these stakeholder groups.

❖ Project Team

THEME: COHESIVENESS AND COMPETENCY

The majority of participants noted the project team as being the most important stakeholder on projects. This theme emerged as a primary theme amongst participants, and captured their views around the importance of the project team in ensuring project delivery. The project team is perceived as vital, as delivery, and progression, is heavily reliant on these stakeholders. Participants noted the importance of the project team being technically capable and having an understanding of what was required.

“If you don’t have your team, who are going to do the actual development, engaged and involved and understanding why they need to do it, and the importance of it, the value to the customer, then you’re not going to get anywhere (P3)”.

It was cited by all participants that these stakeholders have a significant influence in ensuring the success of a project. One participant noted that *“Those are the people you work with on a daily basis, they can kind of make or break your project (P4)”*. Additionally, *“They are absolutely critical to the success of the end deliverable (P2)”*. All participants noted the vital role of the project team in delivery of the project and ownership of the solution, as they are responsible for performing the work and overall solution delivery. This was raised by one participant, who noted that the project team is *“Critical to ensuring that your project is a success in terms of meeting deliverables on time and in budget (P5)”*. It was further noted that, *“I’ve rated the project team highly as these are the actual worker bees that are performing specific allocated roles on the project and therefore they are highly very important (P1)”*.

Furthermore, it was pointed out that the effectiveness of the project team is critical in ensuring overall project delivery, with the team needing to work effectively and co-operatively to realise the project objectives. Cohesiveness was seen as a critical element in ensuring project delivery as noted by one participant, *“Without a strong and connected project team, you never going to be able to deliver that project, especially a team that works well and communicates which I think is key (P6)”*.

❖ Technical Expert

THEME: SOLUTION DESIGN

Participants viewed the technical expert as an important stakeholder on the project providing guidance and direction around the technical solution design. Most participants interviewed cited the technical expert as “*the solution architect of the project* (P1)” and being “*responsible for what is developed* (P5)”. These were listed as key functions performed by the technical expert in guiding the project towards meeting the customers’ requirements.

“They [technical expert] need to lead and guide the team in the right direction in terms of how the development needs to happen and they, in my eyes, are responsible for what is developed (P3)”.

Participants noted that while it is the project team’s responsibility to meet requirements via delivery of the solution, the technical expert needs to lead and enable the technical direction of the group, by providing “*the necessary guidance for us [project team] at a low level, to define how a solution is going to work (P7)*”. All participants cited the importance of the technical expert in communicating with the project team and guiding them around the overall solution design.

Enabling communication with the project team to ensure design is properly understood, along with shepherding the team throughout the development process was also raised as key elements. As noted, the “*technical expert maps their solution in a system requirements spec, and has to answer a million questions a day, not only from the internal project team but also the external project team, this is what drives the ultimate solution (P10)*”.

Participants noted the role of the technical expert in ensuring the project team are aware of what is required from a technical perspective by providing direction, and ensuring all requirements have been catered for in the solution design. This was highlighted as necessary as the “*technical person needs to have the end user in mind whenever doing the technical specification on the project (P8)*” and the “*technical lead is going to be extremely important to make sure that technically it all comes together (P9)*”.

❖ Subject Matter Expert**THEME: GUIDE REQUIREMENTS**

The subject matter expert was regarded as the specialist on the project requirement by just over half of participants, and seen as a key authority in aiding the project through providing context and guidance to any requirement related items. This is evident by the participant responses, who viewed the subject matter expert as an important stakeholder on projects, as they were seen to *“guide the project through their knowledge and expertise (P10) and “guide the business requirement (P1)”, by ensuring that “that it not only aligns with the strategy of the organisation but also feeds into what the client requirements are (P1)”.*

While the customer/client was perceived as the owner of the requirement, providing the high-level detail of what is required, participants viewed the subject matter expert as the key figure in providing detail and background around the specific domain areas relating to the requirements, thereby acting as the *“go-to person on the project when there are questions on the specific areas that the requirement touches on (P10)”.* This was raised as a key factor in assisting the project team understand the elements of what is required and supporting the project team. Additionally, it was highlighted that the subject matter expert would ensure all the details are correct, in so, guiding the projects deliverables to ensure it met the needs of the customer/client, through validating requirements and ensuring the project artefacts correctly define what the project should produce. One participant noted that this is achieved by the subject matter expert through *“understanding at a high-level, what the requirement is and whatever it is we’re doing to build (P7).*

While the subject matter expert was regarded as the key stakeholder in supporting the project requirements, there were participants who perceived this stakeholder within the context of providing technical expertise and direction around the solution development, not unlike that of the technical expert.

“I almost see them [subject matter expert and technical expert] as quite similar. I understand that subject matter expert might be more of a business function, but if you could get those two roles on a project I think they add tremendous value (P6)”.

❖ Project Sponsor

THEME: PROJECT ACCOUNTABILITY

Participants cited the project sponsor as a vital stakeholder as they are “*ultimately accountable* (P2)” for the project. Additionally, one participant noted that these stakeholders are “*very important because you’re [project manager] ultimately accountable to them, and they are the decision makers* (P3)”. This was supported by participants’ views that the sponsor is “*probably the most key person in directing the project, championing the project* (P10)”. Participants further highlighted the importance of the sponsor providing “*clear direction and a mandate to execute on a project* (P5)”, in order to ensure the project is correctly setup and geared towards achieving its goals and objectives.

What was also evident in the participant responses was the need for the project sponsor to assist in resolving key issues and risks raised by the project manager. As the stakeholder who is ultimately accountable, it was highlighted that the sponsor needs to provide guidance and support for key issues on the project. This was raised along with need for the project sponsor to assist in making key decisions which would potentially impact the outcomes of the project, as “*any issues along the project, they’re [project sponsor] the ones who should be actually driving a solution and making key decisions* (P6)”. Additionally, one participant noted that “*when the rubber hits the road and nobody is coming to the party, the project sponsor is the port of call, and they are going to make the decision, or delegate someone, to make a call on what must happen and who must do it* (P8)”.

“When we’ve encountered something where there is an impact on us, that ultimate decision on how we tackle that i.e. do we reduce scope, do we take more time, do we maintain our timelines but spend more money, that decision needs to be made by the sponsor (P7)”.

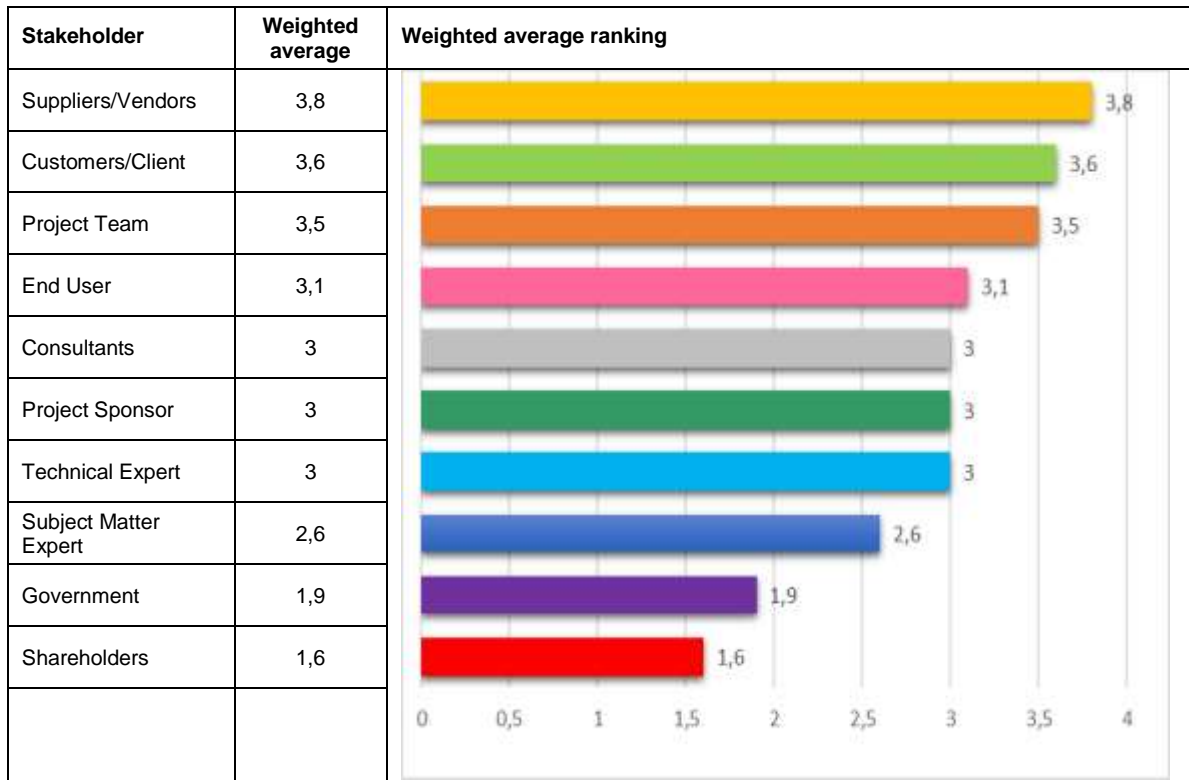
As is alluded to from the above extract, the project sponsor is regarded as an important stakeholder due to the key role performed in assisting the project manager in reviewing issues and making key decisions in support of the overall project.

4.2.1 PROJECT UNCERTAINTY AND STAKEHOLDERS

For Question 6, the aim was to address the second research question, that is confirming which stakeholders cause the most issues and uncertainty on IT projects. **Table 12** provides a view of the descriptive statistics used to examine IT project stakeholder uncertainty, which provided responses to the second research question. The Likert-scale used ranged from 1 to 5, with 1 = Never caused problems and 5 = Very often caused problems. As with research question 1, a weighted average was used to determine the highest-ranking stakeholders with regards to uncertainty, based on responses received.

As is indicated in **Table 12**, the highest-ranking stakeholders with regards to project uncertainty, were the **suppliers/vendors, customers/clients and the project team**.

Table 12: Stakeholder uncertainty ranking



From **Table 12**, it is also apparent that the least significant stakeholders, with regards to project uncertainty, are government and consultants. A further notable finding in the results is that consultants, project sponsors and technical expert were all perceived as causing the same amount of uncertainty on projects.

Question 7 required the participant to elaborate on their responses to Question 6, in order to gain a further understanding of the participants' views on stakeholder uncertainty. As previously noted, the highest-ranking stakeholders with regards to uncertainty, were suppliers/vendors, customers/clients and the project team. Following is a discussion of the results of the dominant themes identified for each of these stakeholder groups.

❖ **Supplier/Vendor**

THEME: LACK OF TECHNICAL COMPETENCY & ENVIRONMENTAL AWARENESS

A vast majority of participants cited the lack of “*technical competency* (P3)” regarding understanding of the host organisational environment and complexity as a key issue experienced with vendors/suppliers on IT projects.

Half of the participants highlighted that suppliers/vendors often “*believe early on in the project that they understand the environment and complexities* (P6)”, however their real level of understanding is exposed during the latter stages of the project with a lack of knowledge and awareness around the technical context of the project, and its integration within the organisation coming to the fore. As noted by one participant, suppliers/vendors “*do not necessarily understand your world, your technical world like you do* (P9)”.

“They believe early on in the project that they understand the environment and complexities, and often give timelines costs that are well below what turns out to be in the project and just purely because they don’t understand our environment and all the complexity, and all the stakeholders they need to engage with (P6)”.

Per one participant, vendors/suppliers “*don’t always have the context of the environment that they’ve been brought on to work in, they don’t always often understand the landscape that they are coming into* (P7)”. Often this results in a vendor who “*over promises and under delivers* (P3)”, something mentioned by numerous participants.

“Some of our fulfilment houses and vendors, have given us problems – they don’t understand our environment well. We have experienced difficulty with them. In their desire to deliver, they over promise and under deliver (P2)”.

Furthermore, participants also noted that because of this lack of understanding around the hosting organisations environment, the supplier/vendor often does not fully comply with the governance and standards which the project needs to adhere to. As noted by one participant “*they [suppliers/vendors] haven’t always adopted standards, they’ve worked in a bit of a vacuum* (P2)”, which results in potential impacts on the scope and timelines of the project, as a result of rework, and ultimately delaying projects.

Participants also cited the lack of control over certain vendors/suppliers, in regard to the deliverables which they are required to produce. As noted by one participant, “*You don’t have direct control over a lot of what they are doing on their side, there’s a lot of trust there* (P5)”. Consequently, it was highlighted that these vendors/suppliers are often located offsite, with the project “*not directly in contact with this supplier* (P10)”, which therefore reduces the control and visibility the project ultimately has in managing the vendors/suppliers.

❖ Customer/Client

THEME: LACK OF INVOLVEMENT AND ACCOUNTABILITY

Lack of participation and accountability on expected project involvement and deliverables was a theme that emerged amongst the majority of participant responses around the issues and uncertainty caused by the customer/client on IT projects. Participants raised the problem of customers/clients being unavailable due to the ongoing operational activities which results in lack

of time being assigned to project activities and impacts on expected deliverables. It was also noted that when resources in the organisation are already stretched, allocating time for a new project is not high on their list of priorities

“Customers are often very, very busy and involved in their day jobs so they get involved upfront, with requirement definition, then we seem to lose contact with them (during execution) and we see them again when they need to test (P2)”.

Participants cited lack of involvement as a key reason for project uncertainty as clients/customers who are not involved are often less willing to accept the end result of the project, because they have not been sufficiently involved, despite the non-involvement being as result of their own doing. The majority of participants raised the importance of having the project deliverables being accepted by the customer/client as a key component in reducing uncertainty and ensuring the project's success.

Furthermore, participants noted that without user involvement, the *“business lacks commitment toward adopting the system in the end (P10)”*, and in some cases, may choose to not accept it.

“We’ve had a business users’ kind of come in as a kind of subject matter expert all along the project timeline and be very involved, when we got to user acceptance testing, the very last day, this end user said, no, you not delivering what we wanted (P3)”.

Additionally, participants raised the issue regarding customers/clients views on IT projects as being an IT driven initiative, and therefore expecting minimum involvement and participation in supporting the project.

“If they still see the project as an IT project as opposed to a business led project with IT supporting it, it can cause major issues especially if they don’t understand

the impact of new initiatives that might affect the project you currently running (P6)".

Ultimately, participants noted that if a project is to be successful, clients and stakeholders need to be involved at the initial stages of the project, and continue that engagement throughout.

THEME: VAGUE AND CHANGING REQUIREMENTS

A further key theme which emerged from participant responses on issues caused by the customer/client was the occurrence of these stakeholders providing insufficient or unclear requirements, along with requirements changing throughout the course of the project.

"I have had customers who keep changing their requirements, even after sign-off, as we start working, changes keep coming through and then we can't deliver because changes keep coming through (P3)".

This was raised as a key concern regarding project delivery and impacts to overall project outcome. Participants cited "*lack of commitment to requirements (P4)*" and "*rework which can take you a lot of time, money and effort (P5)*" as key concerns around customer commitment to ensuring requirements are properly understood and documented.

A further impact raised by participants as a result of this theme was the effect on the overall design of the technical solution. Participants noted that despite the best efforts of the technical expert and project team in ensuring a robust and complete solution design, without clear and thorough requirements, the project team will be unable to deliver an adequate solution. Along with ensuring requirements are made available, participants cited the need for customers/clients to ensure that "*they need to know what they want (P9)*". It was raised that if the customer/client does "*not clearly communicate their vision of what they expect, then it will create confusion later on if they've given a very high-level expectation and it's not in the detail (P10)*". This, as one participant noted, will ultimately "*affect the scope of the project you running, and timelines (P6)*" as the project progresses.

❖ **Project Team**

THEME: INTERNAL CONFLICT AND LACK OF COHESION

Internal team conflicts and tension amongst members was raised as a key issue regarding uncertainty brought about by the project teams. One participant noted, “*In terms of uncertainty by that I mean not delivering timeously or being the cause of impediments or perhaps internal conflict* (P2)”

Participants cited behaviour and interpersonal issues as a reason for the potential conflict, particularly given the nature of an IT project, where projects may span across teams, and teams may often “*work within silos* (P10)”. Reasons provided for lack of unity in teams included “*project team structure and buy in can often cause problems* (P6)”, if teams “*lose motivation* (P6)” and “*cross functional issues* (P4)”, all ultimately resulting in an “*element of resistance in the team to perform certain activities* (P3)” on the project. Furthermore, one participant noted issues around interaction and relationships amongst members resulting in issues on the project:

“*Sometimes there are relationship issues that causes friction, people don’t get on, so they don’t cooperate which doesn’t help when you need to work across systems* (P3)”.

Composition and structure of the team was also cited as a key element in the project team causing uncertainty and issues on the project, which was evident by one participants response, who stated, “*I think the structure of the project team is key and because we don’t necessarily resource the projects, they each have their own agendas and priorities and often the might start working against each other* (P6)”. In addition, participants cited the capacity as a concern, as resources are often assigned to multiple projects within a matrix organisation. As noted by one participant, “*In my current environment, too many projects, lack of resources, so you obviously having issues in terms of capacity* (P4)”.

5. DISCUSSION

The research has yielded results which provide insight into importance of project stakeholders, and where the focus with regards to management of these stakeholders needs to be prioritised.

This chapter discusses the analysis and results of the data obtained, and summarises the research findings and interpretations based on the research questions of this study.

5.1 STAKEHOLDER ENGAGEMENT AND IDENTIFICATION

5.1.1 STAKEHOLDER ENGAGEMENT

The initial analysis focused on gauging participants' views on engaging stakeholders during the lifecycle of the project and whether it was viewed as key to the success of project delivery. All participants agreed that engaging with stakeholders during the lifecycle of a project is key to its successful delivery. It is therefore evident that participants viewed engagement with stakeholders as a key management skill in the overall project approach to ensuring project success (Walker *et al.*, 2008). This engagement allows organisations to better understand the influence and authority of key stakeholders, and allow for a comprehensive approach to planning, communication and risk management, toward achieving project goals and objectives (Rowlinson and Cheung, 2008; Walker *et al.*, 2008; Eskerod and Vaagaasar, 2014).

Key themes which emerged from this analysis around the value of engaging with stakeholders were expectation management and decision making.

Expectation Management	Participants viewed engagement with stakeholders as vital, as it allowed for interaction with stakeholders, thereby allowing for management of expectations and delivery based on stakeholder needs. The question of varying stakeholder expectations has significant implications for successful IT project delivery(Zhang <i>et al.</i> , 2005).
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	<p>One of the key tasks of stakeholder management is to understand the nature of stakeholders' expectations and "<i>weighing the appropriateness of the expectations against the values and mission of the organisation</i>" (Balser and McClusky, 2005: 296). Understanding stakeholders, their expectations and developing strategies to engage these stakeholders, has become one of the vital competences within project-based organisations (PMI, 2013; Aaltonen and Kujala, 2016).</p> <p>Engagement allowed for involvement and participation of stakeholders in the project process, and alignment of overall project process and governance. Furthermore, involvement of stakeholders ensures all required deliverables are included, and catered for in the project artefacts, as all necessary input is provided for by the stakeholders. In order to achieve the goals and objectives of the project, and ultimately adoption of the developed system or service, it is imperative to reflect on the interests and concerns of the interested stakeholders before and during the development of the IT solution (Zhang <i>et al.</i>, 2005).</p> <p>Successful project managers are aware that active support of stakeholders is critical to delivery, and this requires them to build and sustain robust relationships, and focus on engaging the support of executives through targeted communication based on managing their expectations (Bourne, 2011). It is therefore beneficial for the project manager and project stakeholders for the former to engage with the project stakeholders' in a way which ensures they contribute as required by the project (Ward and Chapman, 2008; Eskerod and Vaagaasar, 2014).</p>
Decision Making	Decision making was a key theme which emerged regarding engagement with stakeholders. Ensuring that stakeholders are engaged regarding decision making on projects was raised by all participants. Participants noted that an

	<p>awareness on the importance of engaging with stakeholder in making project decisions is a key factor in ensuring successful project delivery.</p> <p>Participants also cited the influence of key decisions taken by stakeholders on project outcomes, and delivery success. Most project managers raised engagement with stakeholders in decision making as key to supporting the project manager in ensuring that the project is successfully delivered. It was also noted that in most circumstances, the project manager needs to engage with his senior stakeholders where there are decisions which may impact on the success of the project. The project management team has a restricted amount of resources to allocate on project stakeholder interactions, and as a result will be required to effectively and efficiently deal with each stakeholder given these constraints (Cadle and Yeates, 2004; Eskerod and Vaagaasar, 2014).The project manager can increase the possibility of successfully delivering a project through influencing and management of stakeholders (PMI, 2013; Eskerod and Vaagaasar, 2014).</p>
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5.1.2 *STAKEHOLDER IDENTIFICATION*

A key process that requires attention when developing a projects strategic objectives is to identify the stakeholders, with a view to understanding their expectations (Bourne and Walker, 2005; Ballejos and Montagna, 2008). This is necessary in order to provide a solution that best deals with their frequently inconsistent array of wants and needs (Karlsen, 2002; Bourne and Walker, 2005). Participants were asked to provide a response regarding whether a formalised approach existed within the participants organisation for identifying project stakeholders. Most of the participants agreed that a formalised system for identifying stakeholders existed in their organisation, while just under half had a neutral view, and were uncertain whether a formalised system existed in their organisation.

Stakeholder identification can be seen as a method by which to identify key stakeholders of the project who impact, or are impacted during the realization of the project objectives (Hutt, 2010; Kumar *et al.*, 2016). The results therefore indicate that the majority of the participants interviewed applied a formal stakeholder identification approach within their organisations, allowing for the recognition of the key stakeholders impacted or affected by the project.

5.2 RESEARCH QUESTION 1

Research over recent years has given insight into the significant value of stakeholders on projects, with stakeholder management viewed as a key focus area on projects (Crawford and Brett, 2001; Sutterfield *et al.*, 2006; Littau *et al.*, 2010; Eskerod and Vaagaasar, 2014).

Frequently, the resources and inputs into project delivery are controlled by stakeholders, which affords the stakeholders a certain power (Karlsen, 2002; Aaltonen and Kujala, 2016). Variations in access to information or the externally controlled resources can impact the planning, organizing, staffing, and management of the project, and ultimately its successful delivery (Karlsen, 2002; Karlsen *et al.*, 2005; Aaltonen and Kujala, 2016). Therefore, a key focus of this research was to gain an understanding of who the most important stakeholders were viewed as, to allow for improved management and stakeholder focus.

The primary focus of research question 1 was to determine the most important stakeholders on an IT project. Participants were asked to rate the importance of stakeholders on their bearing towards an IT project. The result indicated that the most important stakeholders were the project team, technical expert, subject matter expert, and the project sponsor. Furthermore, the results show that while the project team is seen as the most important stakeholder overall, there is no difference in importance between the technical expert, subject matter expert, and the project sponsor. Based on these results, emphasis should be placed on these stakeholders, from a stakeholder

management perspective, as their perceived importance can have an impact on the outcomes of the project.

The organisation of project teams in the IT field has grown from a requirement for technical expertise in systems analysis and design, along with a need for subject matter expertise from functional area departments (Gillard, 2009). This is evident, as project managers are required to oversee many stakeholders, which include project team members, subject matter experts from the organisation's functional, and support departments who are temporarily attached to the project, along with technical expertise, and the project sponsor, who is seen as the project champion (Walker *et al.*, 2008; Gillard, 2009).

The needs and interests of these stakeholders should be prioritized due to their importance (Mitchell *et al.*, 1997). The focus on these stakeholders is pertinent, as the number of stakeholders within the project grows, so would the time, resources, management costs and effort needed by project management to engage stakeholders, to effectively manage their needs, and to decide which of the stakeholders need to be included in engagement efforts and which stakeholders will have less of an influence in delivery (Bourne and Walker 2007; Aaltonen and Kujala, 2016; Cuppen *et al.*, 2016).

The ability to identify and fully comprehend the authority and influence of the numerous project stakeholders is a critical skill which successful project managers need to possess (Bourne and Walker, 2005). Therefore, an awareness of these stakeholders can prove significantly valuable to the project, as they contribute knowledge, insights and backing in initiating a project and supporting it through its execution (Bourne and Walker, 2005; Ballejos and Montagna, 2008).

Following is a summary of the dominant themes which emerged based on participant response detail regarding reasoning for participant stakeholder importance selection.

❖ **Project Team**

Cohesiveness and Competency	<p>The project team was rated as the most important stakeholder by most participants. These project teams are seen as members with diverse sets of knowledge and skills that work interdependently on IT projects, with a clearly defined objective and structure in order to ensure solution delivery (Jetu and Riedl, 2012). A key theme which arose via participant feedback highlighting the motive for this importance was the cohesiveness and competency of the team.</p> <p>The project team is perceived as vital, as delivery, and progression, is heavily reliant on these stakeholders. As noted by Thamhain (2004b), the project team usually has more expertise, experience, and information than does an individual, and as a consequence, working effectively is seen as an important success factor.</p> <p>It was cited by all participants that these stakeholders have a significant influence in ensuring the success of a project, as they are involved in the day-to-day delivery and development of the solution. Additionally, effectiveness and competency of the project team was raised as critical in ensuring overall project delivery, with the team needing to work effectively and co-operatively to ensure project objectives and deliverables are met, in order to deliver the required solution. This is in alignment with Jetu and Riedl (2012) who identified and included competency and cohesiveness among their determinants of project team success.</p>
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❖ **Technical Expert**

Solution Design	<p>The technical expert is viewed as an important stakeholder on the project providing guidance and direction around the technical solution design. This is achieved via overseeing the solution design and ensuring the solution is technically robust; key functions performed by the technical expert in guiding the project towards meeting the customers' requirements.</p> <p>Additionally, while it is the project teams' responsibility to meet requirements via delivery of the solution, the technical expert needs to lead and enable the technical direction of the group. The technical expert guides the project team to ensure design is properly understood, along with shepherding the team throughout the development, ensuring requirements are mapped to the solution design.</p> <p>Ultimately, the role of the technical expert in ensuring the project team are aware of what is required from a technical perspective by providing direction, and ensuring all requirements have been catered for in the solution design.</p>
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❖ **Subject Matter Expert**

<p>Guide Requirements</p>	<p>As noted by Larmore (2011: 1), there is often a need to deploy a subject matter expert to provide temporary “<i>expertise, guidance, or assessment</i>” for a certain technical or functional purpose. The subject matter expert was regarded as the specialist on the project requirement, and viewed as a key authority in supporting the project by providing context and guidance to any requirement related items. The subject matter expert guides the project via their knowledge and proficiency in the requirements.</p> <p>While the customer/client was perceived as the owner of the requirement, providing the high-level detail of what is required, subject matter expert is viewed as the key figure in providing detail and background around the specific domain areas relating to the requirements. The subject matter expert generally has special in depth knowledge of a business or technical domain, that is invariably key to the project organisations success (Larmore, 2011).</p> <p>Ultimately, the subject matter expert would ensure all the details are correct, in so, guiding the projects deliverables to ensure it met the needs of the customer/client, through validating requirements and ensuring the project artefacts correctly define what the project should produce.</p> <p>While the subject matter expert was regarded as the key stakeholder in supporting the project requirements, there were participants who perceived this stakeholder within the context of providing technical expertise and direction around the solution development, not unlike that of the technical expert.</p>
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❖ **Project Sponsor**

Project Accountability	<p>The project sponsor is viewed as a vital stakeholder as they are accountable for the project. The accountability extends to the sponsor acting as the project champion, along with directing the project through providing the project mandate and direction (Kloppenborg <i>et al.</i>, 2011; PMI, 2013).</p> <p>Furthermore, the accountability also includes the sponsors' role in supporting the project manager in resolving any major issues escalated. As the stakeholder who is ultimately accountable, the sponsor needs to provide guidance and support for key issues on the project, in order to steer the project toward a successful outcome. As noted by Bourne (2011), studies have consistently indicated that the active support of stakeholders from the senior leadership team, in particular the sponsor, is a vital aspect in driving projects toward successful delivery.</p> <p>Furthermore, the project sponsor is accountable for making key decisions which would potentially impact the outcomes of the project. As one of the vital project stakeholders who has a vested interest in the delivery of the project, and who has a direct relationship with the project manager (PMI, 2013), the sponsor is ultimately accountable for the success of the project, and through their senior position, possess the ability to have an influence in the decision making process (Kloppenborg <i>et al.</i>, 2011).</p>
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5.3 RESEARCH QUESTION 2

Research question 2 was aimed at identifying which stakeholders caused the most uncertainty on IT projects. As noted by Ward and Chapman (2008) stakeholders are a key cause of uncertainty in projects, with this uncertainty encompassing knowledge of who the relevant stakeholders are, how they could potentially influence a project, and what their motivations are in regards to how their actions affect project delivery. The results indicated that the stakeholders perceived to cause the most uncertainty on projects were suppliers/vendors, customers/clients and the project team. Suppliers/vendors were viewed as causing the greatest amount of uncertainty on projects, which is in alignment with Moodley (2008) and (Karlsen, 2002), who also had vendors/suppliers and customers/clients ranked in the top three stakeholders causing uncertainty.

The customer/client is responsible for providing the requirements (Karlsen, 2002), and there exists the propensity for problems to result from a misunderstanding between analyst and the customer/client from ambiguity in the documentation, or scope changes, which if not addressed are often the most persistent and costly (Aziz and Wong, 2015; Maalem and Zarour, 2016). The project team works interdependently to deliver the solution (Jetu and Riedl, 2012), however, with the current change in information technology, project teams are often required to deal with organisational needs which place significant demands and extend the team (Liu and Cross, 2016).

While the vendor offers technical expertise, there remains a concern over outsourced projects for both clients and vendors (Niazi *et al.*, 2016; Liu *et al.*, 2017). Clients are faced with the challenge of applying the correct controls, with vendors concerned about the lack of adequate preparations for “*outsourcing, systematic strategies, and understanding of outsourcing working processes*” from the client organisation (Liu *et al.*, 2017: 1115).

It is therefore critical that the project manager work with these stakeholders, in order to manage and reduce uncertainty on a project, thereby contributing to ensuring successful project delivery.

From the results, it is also evident that the least significant stakeholders, with regards to project uncertainty, are government and consultants. A further notable finding in the results is that there is no difference in the uncertainty on projects caused by consultants, project sponsor and technical expert.

Below is a summary of the dominant themes which emerged based on participant response detail regarding reasoning for participant stakeholder uncertainty selection.

❖ Suppliers/Vendors

Lack of Technical Competency & Environmental Awareness	<p>Projects are challenged when there is a lack of technical understanding by the vendor around the client organisation and the complexity with the environment. This environment describes the context in which the client and supplier undertake the project, including the physical working environment, technical aspects and time required (Hartnett <i>et al.</i>, 2012).</p> <p>Further challenges occur when this lack of understanding is exposed during the latter stages of the project, with a large portion of the required development completed, resulting in impacts and potential delays in the delivery of the IT solution.</p> <p>As a result, it is often found that vendors may “<i>over promises and under delivers</i>” when it comes to providing clients with a view of their technical capabilities and solution delivery. This becomes evident when costs and timelines exceed initial estimates, and the client is left to take on these over-runs. It is therefore important for the client organisation to ensure that the vendor has an accurate and complete view of the client systems, processes and environment, in order to mitigate against these challenges. With the vendor offering a technical service/product, this allows the client to focus on</p>
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	<p>their core business processes, leaving the vendor to ensuring the accuracy of the technical aspect (Niazi <i>et al.</i>, 2016).</p> <p>Additionally, in the absence of a thorough awareness and understanding of the clients' processes and environment, the supplier/vendor may not fully comply with the governance and standards which the project organisation needs to adhere to. This further results in possible impacts to the scope and timelines of the project, potentially affecting successful delivery.</p> <p>Clients may also have a lack of control over certain vendors/suppliers, regarding the deliverables which they are required to produce. This may result from vendors/suppliers being located offsite, with the project not directly in contact with this supplier, often reducing the control and visibility the project ultimately has in managing these vendors/suppliers. Clients therefore need to ensure that sufficient control mechanisms are applied in order to monitor and manage the vendor relationships, to regulate the actions of vendors toward achieving project delivery (Liu <i>et al.</i>, 2017).</p>
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❖ Customer/Client

<p>Lack of Involvement and Accountability</p>	<p>A key theme which emerged regarding the uncertainty caused by the customer/client was the lack of involvement and accountability on expected project deliverables. Involvement is required when users are given responsibility, which may include leadership and accountability, for IT projects (Hartnett <i>et al.</i>, 2012).</p> <p>Clients are often very caught up in their day-to-day activities, and therefore may be unable to allocate sufficient time to a project. This may result in the customer/client being unavailable, thereby not allocating adequate time to</p>
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	<p>the project which subsequently impacts on expected project deliverables. Additionally, when these resources in the organisation are already stretched, allocating time for a new project is not always possible. Lack of involvement, viewed as a key reason for project uncertainty, extends to reduced accountability, as clients/customers who are not involved are not available when feedback is required. Without user involvement, customers/clients may be less willing to adopt the solution and project outputs.</p> <p>Ultimately, if a project is to be successful, clients and stakeholders need to be involved at the initial stages of the project, and continue that engagement throughout, while taking ownership for deliverables and inputs expect of them.</p>
Vague and Changing Requirements	<p>A further challenge resulting from uncertainty brought on by the customer/client was the occurrence of these stakeholders providing insufficient or unclear requirements, along with requirements changing throughout the course of the project. As noted by Brenda (1999), weak definitions of requirements at the project planning stage, along with changes in scope, can negatively impact the success of the project. Lack of commitment toward providing adequate requirements, is a key issue on IT projects (Matti <i>et al.</i>, 2009), and can result in costly impacts to the project if not properly understood and documented (Brenda, 1999; Matti <i>et al.</i>, 2009)</p> <p>A further impact of this theme is the effect on the overall design of the technical solution. Despite the best efforts of the technical expert and project team in ensuring a robust and complete solution design, without clear and thorough requirements, the project team will be unable to deliver an adequate solution. Defining and agreeing product requirements is especially important when the design activities, and production, are dispersed (Matti <i>et</i></p>

	<p><i>al.</i>, 2009).</p> <p>This remains a challenge for most IT organisations, as customer requirements are often unclear and not detailed, with different stakeholders using different terminology, with requirements often poorly understood and expressed in inadequate and conceptual terms (Jiao and Chen, 2006). From an IT project manager's perspective, ensuring a solution is delivered according to user requirements is an extremely important contributor toward IT project success(Craig <i>et al.</i>, 2006), and it is therefore vital that the correct requirements are provided.</p> <p>As the results indicate, projects with requirements which have not been clearly defined or encounter changes in scope throughout the project are in jeopardy of not achieving the intended project objectives (May, 2007). Organisations need to ensure that requirements are validated and ensure that it is correctly defined, it does not contradict the expectations of the various stakeholders of the system and does not contradict each other, so that it defines the software requirements adequately (Maalem and Zarour, 2016).</p>
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❖ **Project Team**

<p>Internal Conflict and Lack of Cohesion</p>	<p>Internal team conflicts and tension amongst members is a key issue regarding uncertainty generated by the project teams. Conflict may arise when there are disagreements among project team members about the content of the tasks being performed including differences in viewpoints, approaches, and opinions (Chen and Chang, 2005).</p> <p>Behaviour and interpersonal issues was raised as a reason for the potential conflict, particularly given the nature of an IT project, where projects may</p>
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	<p>span across teams, requiring members to work interdependently (Jetu and Riedl, 2012). This interpersonal conflict exists when there are interpersonal incompatibilities among individuals within the team, including “<i>tension, animosity, and annoyance among members within a team</i>” (Chen and Chang, 2005: 130).</p> <p>Composition and structure of the team was also cited as a key element in the project team causing uncertainty and issues on the project, with projects not being resourced correctly, or insufficiently, and work not adequately being prioritised. Additionally, capacity constraints may occur, as a result of growing demands, with teams required to work faster, and with more flexibility, and to overcome other challenges presented by today's diverse and complex and integrated work environments (Liu and Cross, 2016). This often results in the team working on multiple projects at a time, further impacting team cohesion and ability to focus on the priority and allocated tasks.</p>
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5.4 RESEARCH QUESTION 3

The aim of research question 3 was to determine whether failure to identify one or more stakeholders on a project has a negative impact on delivery. Participants were asked, “To what extent do you agree with the statement that - failure to identify one or more stakeholders negatively affect IT project outcomes”. All the participants agreed that failure to identify one or more stakeholders negatively affects IT project delivery. Stakeholders can be a single individual or a group, who has the ability to influence, or is influenced by, the achievement of project organisations’ goals and objectives (Kumar *et al.*, 2016). It is ultimately the stakeholders’ who eventually determines whether a project is a success, based on the project outcomes (Karlsen, 2002; Karlsen *et al.*, 2005). Some stakeholders have power because they control information and resources, while other stakeholders are important because they decide whether the project result

is successful or not (Karlsen, 2002), and it is therefore key to identify all required stakeholders. Project managers of IT projects should be mindful of overlooking groups or individuals, as they may become important, or have greater influence, in future project phases (Lopes and Manas, 2013). The results indicate that it is imperative that all stakeholders on a project are identified, as the projects will face significant challenges if not done.

The dominant theme which emerged from this analysis around the failure to identify stakeholders was risk and scope management.

RISK AND SCOPE MANAGEMENT	<p>While failure to identify stakeholders had the potential to negatively impact on the delivery of the project, it was highlighted that the severity of the impact largely depends on the type of stakeholder which has not been identified. Per Olander (2007), there may be a potential negative impact on the project depending on the status or power of the individual stakeholder.</p> <p>It was noted that not all stakeholders need to be engaged throughout the entire lifecycle of the project, as there may be different stakeholders who will need to be engaged at different phases. The design, development, implementation and feedback on any information system or technology will vary depending on the characteristics of the involved individuals or groups, as well as the roles they play within the project (Zhang <i>et al.</i>, 2005). It is therefore vital that the project management process involves the right stakeholders in the right phases (Beringer <i>et al.</i>, 2012), to minimize any negative impacts on the project.</p> <p>It was noted that identification of stakeholders earlier on in the project lifecycle would facilitate a more positive outcome in project delivery. This is particularly key around requirement management, as stakeholders who are identified late have the propensity to introduce scope changes which may impact project</p>
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	<p>costs and timelines. When stakeholders are identified and engaged, projects are more likely to progress with minimal concern regarding stakeholder uncertainty, while working toward realising the project goals and objectives (Karlsen, 2002; Bourne and Walker, 2005).</p>
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	<p>By identifying key stakeholders, and ensuring expectations and priorities are well understood, through engagement, the project manager will be better positioned to create plans and devise a communication approach which is comprehensive and inclusive of stakeholder needs.</p>
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	<p>Additionally, identification of key stakeholders allows for improved management of risks, as these stakeholders will offer feedback with respect to identifying potential risks along with options for managing and mitigating these. IT projects are high risk activities due to the fast pace of technological changes and trends, and the organisational changes they may result in, therefore risk management is vital for successful project delivery (Vrhovec <i>et al.</i>, 2015).</p>
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6. CONCLUSION AND FUTURE RESEARCH RECOMMENDATIONS

Information technology project success rates remain low despite increased investments in information systems and their importance for contemporary organisations. Both research and practice suggest that stakeholders play a critical role in the successful delivery of projects. A project's success, or failure, is significantly influenced by a combination of the stakeholders' expectations and perceptions, and the capability and willingness of the project manager to effectively manage these aspects. As noted by Walker *et al.* (2008), stakeholder identification, management and engagement are recognized as key project management skills. This research sought to explore and understand the importance and management of IT project stakeholders, with the objectives of identifying which stakeholders are most important to the project, and to establish which stakeholders impact the project by causing problems on the project. This was achieved by exploring stakeholder importance, stakeholder uncertainty, and stakeholder identification on IT Projects. Additionally, key themes relating to each were identified.

The results of this research indicated that the most important IT project stakeholders are the project team, technical expert, subject matter expert, and the project sponsor. Key themes which emerged from the data regarding their importance were cohesiveness and competency (project team), solution design (technical expert), guide requirements (subject matter expert), and project accountability (project sponsor). Due to the perceived importance of these stakeholders on IT projects, the project manager needs to ensure that these stakeholders are included and consulted on the project.

The stakeholders who were identified as causing the most issues and uncertainty on projects are suppliers/vendors, customer/client and project team. Key themes which emerged from the data in regard to causes for their uncertainty were lack of technical competency & environmental awareness (supplier/vendor), lack of involvement and accountability (customer/client), vague and changing requirements (customer/client) and internal conflict and lack of cohesion (project team).

Focus needs to be placed on management of these stakeholders in order to mitigate risk and uncertainty on IT project delivery.

Lastly, the research sought to investigate participants' views on stakeholder identification, specifically around whether failure to identify stakeholders negatively impacts IT project outcomes. All participants agreed that not identifying the necessary stakeholders could have an impact on IT project outcomes. Additionally, this impact is largely dependent on the type of stakeholder and their level of involvement. The dominant theme which emerged from this analysis around the failure to identify stakeholders was risk and scope management.

A notable finding from the data analysis was that the project team was viewed as the most important stakeholder while also ranking highly in regard to stakeholders who cause uncertainty on projects. Special attention should therefore be placed on the management of this stakeholder in order to ensure minimal impacts to project delivery.

The results of this research will prove beneficial to IT project managers as it will assist in providing insight into which stakeholders require greater focus regarding stakeholder management, thereby working toward improving IT project delivery results. This is aligned with Thamhain (2004a; 2004b) who, in his research into the effectiveness of team leadership on technology based environments, found that increased involvement of all project stakeholders, improved work support, active involvement, effective risk management, can encourage team commitment and performance toward project delivery. Inherently, to attain the desired outcome of successful project delivery, the project manager must be capable of managing the interests of numerous stakeholders throughout the entire execution of the project (Sutterfield *et al.*, 2006; PMI, 2013).

Stakeholder identification, management and engagement are recognized as key project management skills (Walker *et al.*, 2008) and it is therefore vital that the project manager consider these stakeholders in the management process.

Lastly, suggestions for future research, which are based on the researchers experience within this area of research, are listed below:

- Further research on this topic is required across a greater sample of participants within South Africa in order to obtain a broader view of the status of stakeholder management with the South African IT sector.
- Further research is needed to explore and identify aspects which have a negative impact on IT project delivery, in relation to stakeholder management, within the South African context. Future research in this field will assist project managers significantly in the preparation of risk management strategies, and overall project management.

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APPENDIX A - COVER LETTER



Department of Construction Economics and
Management
Fifth Level
Snape Building, Engineering Mall Upper
Upper Campus
Telephone: +27 21 650 3443
Email: Con-cem@uct.ac.za

The Importance and Management of IT Project Stakeholders

Dear Sir/Madam

The research is focused on investigating the impact and management of information technology (IT) project stakeholders. Efficiently delivering expected benefits from IT projects remains a challenge for many organisations. The relationship between project managers and the various stakeholders, applies a significant influence on the project processes and outcomes. It is therefore essential to understand which stakeholder strategy should be applied to each stakeholder group, based on their importance to the overall project.

Your participation in this research project is greatly appreciated. Your input will allow me to identify and understand the impact and management of IT project stakeholders, specifically with regards to stakeholder importance. The interview should take approximately 20-30 minutes of your time.

Data collected will be stored electronically and will be kept strictly confidential. Participation will be anonymous as no sensitive personal details such as name and address will be collected. However, if you wish to receive a copy of the final results of the research, you are welcome to give me your email address and a summary of the final results will be sent to you.

The interview instrument that will be administered has been approved by the University of Cape Town Ethics Committee and thus, meets all ethical requirements imposed by the University.

If you have any further queries prior to the interview, please feel free to contact me using the contact details provided below.

Thanks again for agreeing to participate,
Sincerely,

M. Zaid Khatieb
Masters Student (Researcher)
Email: khtzai002@mail.uct.ac.za
Work: 021 937 5577
Cell no: +27727201780

APPENDIX B - CONSENT FORM



Department of Construction Economics and
Management
Fifth Level
Snape Building, Engineering Mall Upper
Upper Campus
Telephone: +27 21 650 3443
Email: Con-cem@uct.ac.za

Participant Consent Form

Date:

I agree to take part in the "Importance and Management of IT Project Stakeholders" study conducted by Zaid Khatieb, under the supervision of Ian Jay, for the Department of Construction Economics and Management at the University of Cape Town. Any information that I provide in this study shall not be used for any other purpose other than the one stated.

Do you wish to remain anonymous? (*please tick*)

Yes ☐ No ☐

If you answer "No" to the above question, please provide the following details:

Name:

Age:

Email Address:

Signature of participant

Signature of researcher

APPENDIX C – RESEARCH INSTRUMENT

- Thank you for agreeing to participate in this interview.
- The purpose of this research is to investigate the importance and management of project stakeholders on IT projects. This information is required for academic purposes only and can aid in improving the success of projects through critically understanding the impact that stakeholders can have on a project.
- Please note that you will remain completely anonymous and your responses will be kept strictly confidential.
- If further use of this data is required, subsequent consent to this effect will be requested. If further clarification is required please feel free to contact me via email.
- Also, you are free to withdraw from the process at any time.

First, I would like to ask you some questions about your role and the project organisation:

(Section A: Demographic profile of the participant)

Q.1 Please confirm your current role in your organisation

Q.2 Years of experience in your role:

- 0 – 4
- 5 – 10
- 11 – 20
- Greater than 20

Q.3 Total number of projects worked on in last 5 years:

- 0 – 3
- 4 – 8
- 9 – 15
- Greater than 15

Q.4 Average value of projects worked on, ZAR

- Less than 2 million
- 3 – 5 million
- 5 – 10 million
- 11 – 20 million
- 20 – 40 million

(Section B: Impact and Management of Stakeholders)

- Q1. To what extent do you agree that engaging with stakeholders during the lifecycle of a project key is to the success of its delivery? (Options – Strongly agree, Agree, Neutral, Disagree, Strongly disagree)
- Q2. Can you please elaborate on why you view agree/disagree? (based on the previous question)
- Q3. To what extent do you agree that your organisation has a formalized system for identifying project stakeholders? (Options – Strongly agree, Agree, Neutral, Disagree, Strongly disagree)
- Q4. Please rate the importance of the following stakeholders on their bearing towards an IT project? (See Q4. Survey below)
- Q5. Of the stakeholders who you've rated as highly with regards to their importance, can you please elaborate on why you have rated them highly?
- Q6. Please rate the impact of the following external stakeholders according to which of them caused the most problems and uncertainty for the project? (See Q6. Survey below)
- Q7. Of the stakeholders who you have listed as causing the most uncertainty, can you please elaborate on why?
- Q8. To what extent do you agree with the statement that " failure to identify one or more stakeholders negatively affect IT project outcomes" (Options – Strongly agree, Agree, Neutral, Disagree, Strongly disagree)
- Q9. Can you please elaborate on why you agree/disagree? (based on the previous question)

Q4. Please rate the importance of the following stakeholders on their bearing towards an IT project?

		Very important	Fairly Important	Average importance	Not so important	Not at all important
1.	Project Team	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	Technical Expert	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	Subject Matter Expert	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	Project Sponsor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	Customers/Client	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	Shareholders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	End User	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	Suppliers/Vendors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	Government	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	Consultants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q6. Please rate the impact of the following external stakeholders according to which of them caused the most problems and uncertainty for the project?

		Never caused problems	Rarely caused problems	Sometimes caused problems	Often caused problems	Very often caused problems
1.	Project Team	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	Technical Expert	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	Subject Matter Expert	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	Project Sponsor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	Customers/Client	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	Shareholders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	End User	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	Suppliers/Vendors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	Government	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	Consultants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>